BRIGHAM YOUNG UNIVERSITY

General Catalog of Courses
1975 - 1976

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Brigham Young
University Bulletin

General
Catalog

1975-76

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Map of the Campus ... Inside Back Cover

Dedication of the Heber J. Grant Library on Founders Day, October 16, 1925, during BYU's semicentennial celebration. Included among the many dignitaries that can be identified are President Heber J. Grant, in the center of the photo; President Franklin S. Harris, to the right of President Grant; and President-Emeritus George H. Brimhall, to the right and in front of President Harris.

Academic Calendar

Brigham Young University's year-round modular calendar consists of three 16-week semesters, with the third semester divided in half so that students can take either or both halves, or terms. Expressed in months of study, the calendar can be abbreviated 4-4-2-2. The regular University curriculum continues through the Spring and Summer terms. Block scheduling makes it possible for complete courses to be finished in each of the two-month terms.

Semesters are interchangeable. Students may complete their college study by attending any two semesters during the year and may work the other semester—not necessarily during the summer. This is advantageous where employment is more easily obtained during the autumn or winter.

Students wishing to do so may graduate in three years by attending an extra half semester per year (4-4-2) such as the period from September through June—totaling seven and one-half semesters in three years. The extra half semester of credit can be completed with CLEP examinations, with college equivalency credit from high school, by registering for an extra hour in each of the seven and one-half semesters, by registering for an extra term (such as the Summer Term), or by taking an extension or home-study course during one of the three years.

For students on the conventional two-semester program, the early closing of the Winter Semester (in the third week in April) provides additional working time and a first chance at summer jobs.

Calendar for Fall Semesters

1975	1976	1977	
Jan. 31 F	Jan. 31 Sa	Jan. 31 M	Last day continuing students may submit applications for scholarships for Fall Semester
Feb. 15 Sa	Feb. 15 Su	Feb. 15 T	Last day freshman students may submit applications for scholarships for Fall Semester
Apr. 1 T	Apr. 1 Th	Apr. 1 F	Last day transfer students may submit applications for scholarships for Fall Semester
Apr. 30 W	Apr. 30 F	Apr. 30 Sa	Final date for new freshmen to submit applications for Fall Semester
Jul. 7 M	Jul. 6 T	Jul. 5 T	Last day students may submit advance registration forms for Fall Semester
Jul. 15 T	Jul. 15 Th	Jul. 15 F	Final date for new transfer students, former BYU students, and graduate students to submit applications for Fall Semester
Aug. 22 F	Aug. 20 F	Aug. 22 M	Tuition mail-in deadline for Fall Semester
Aug. 26 T	Aug. 24 T	Aug. 26 F	Preschool workshop for staff
Aug. 27-28 W-Th	Aug. 25-26 W-Th	Aug. 29-30 M-T	Preschool faculty workshop
Aug. 28-29 Th-F	Aug. 26-27 Th-F	Aug. 29-30 M-T	New-student orientation
Aug. 29 F	Aug. 27 F	Aug. 29 M	Registration for continuing and former students who did not use advance registration system
Aug. 30 Sa	Aug. 28 Sa	Aug. 30 T	New-student registration
Sep. 1 M	Sep. 6 M	Sep. 5 M	Labor Day holiday
Sep. 2 T	Aug. 30 M	Sep. 1 Th	First day of classes
Sep. 2 T	Aug. 30 M	Sep. 1 Th	First day change in registration permitted
Sep. 2 T	Aug. 30 M	Sep. 1 Th	First day late registration fee assessed
Sep. 15 M	Sep. 13 M	Sep. 14 W	Last day for late registration and adding classes
Sep. 16 T	Sep. 14 T	Sep. 15 Th	Fee in effect for dropping classes
Sep. 30 T	Sep. 30 Th	Sep. 30 F	Final date to submit applications for second block Fall Semester
Oct. 6 M	Oct. 4 M	Oct. 5 W	Last day to drop continuous and first-block classes for academic reasons

Oct. 6 M	Oct. 4 M	Oct. 5 W	Last day to officially withdraw from the University without failing grades
Oct. 10 F			Founder's Day activities: no classes
Oct. 24 F	Oct. 22 F	Oct. 26 W	Midsemester (second-block) registration
Oct. 27 M	Oct. 25 M	Oct. 27 Th	Classes begin for second block
Oct. 31 F	Oct. 29 F	Nov. 4 F	Last day to drop second-block classes
Nov. 27-28 Th-F	Nov. 25-26 Th-F	Nov. 24-25 Th-F	Thanksgiving holiday
Dec. 1 M	Nov. 29 M	Dec. 2 F	Last day to officially withdraw or drop classes for any reason
Dec. 16 T	Dec. 14 T	Dec. 16 F	Last day of class instruction
Dec. 17-19 W-F	Dec. 15-17 W-F	Dec. 19-21 M-W	Final exams

Calendar for Winter Semesters

1975-76	1976-77	1977-78	
Nov. 1 Sa	Nov. 1 M	Nov. 1 T	Last day new students may submit applications for scholarships for Winter Semester
Nov. 7 F	Nov. 12 F	Nov. 11 F	Last day students may submit advance registration forms for Winter Semester
Dec. 1 M	Nov. 30 T	Nov. 30 W	Final date for new freshmen to submit applications for Winter Semester.
Dec. 1 M	Nov. 30 T	Nov. 30 W	Final date for new transfer students, former BYU students, and graduate students to submit applications for Winter Semester
Dec. 23 T	Dec. 24 F	Dec. 30 F	Tuition mail-in deadline for Winter Semester
Jan. 2-3 F-Sa	Jan. 3 M	Jan. 6-7 F-Sa	New-student orientation
Jan. 2 F	Jan. 3 M	Jan. 6 F	Registration for all students who did not use advance registration system
Jan. 3 Sa	Jan. 3 M	Jan. 7 Sa	New-student registration
Jan. 5 M	Jan. 4 T	Jan. 9 M	First day of classes
Jan. 5 M	Jan. 4 T	Jan. 9 M	First day change in registration permitted
Jan. 5 M	Jan. 4 T	Jan. 9 M	First day late registration fee assessed
Jan. 16 F	Jan. 14 F	Jan. 20 F	Final date of application for April graduation
Jan. 16 F	Jan. 14 F	Jan. 20 F	Last day for late registration and adding classes
Jan. 19 M	Jan. 17 M	Jan. 23 M	Fee in effect for dropping classes
Jan. 30 F	Jan. 31 M	Jan. 30 M	Final date for students to submit applications for second block Winter Semester
Feb. 9 M	Feb. 7 M	Feb. 10 F	Last day to drop continuous and first-block classes for academic reasons
Feb. 9 M	Feb. 7 M	Feb. 10 F	Last day to withdraw officially from the University without failing grades
Feb. 16 M	Feb. 21 M	Feb. 20 M	Holiday—Presidents' Day
Feb. 26 Th	Feb. 24 Th	Mar. 2 Th	Midsemester (second-block) registration
Mar. 1 M	Mar. 1 T	Mar. 6 M	Classes begin for second block
Mar. 5 F	Mar. 4 F	Mar. 10 F	Last day to drop second-block classes
Apr. 2 F	Apr. 1 F	Apr. 7 F	Last day to officially withdraw or drop classes for any reason
Apr. 19 M	Apr. 18 M	Apr. 24 M	Last day of class instruction
Apr. 20-22 T-Th	Apr. 19-21 T-Th	Apr. 25-27 T-Th	Final exams
Apr. 23 F	Apr. 22 F	Apr. 28 F	Commencement

Calendar for Spring Terms

1976	1977	1978	
Jan. 31 F	Jan. 31 Sa	Jan. 31 M	Last day on which continuing students may submit scholarship applications for early awarding of Spring Term scholarships
Mar. 1 M	Mar. 1 T	Mar. 1 W	Last day freshman, continuing, and transfer students may submit application for scholarships for Spring Term
Mar. 15 M	Mar. 18 F	Mar. 20 M	Last day students may submit advance registration forms for Spring Term
Mar. 30 T	Mar. 30 W	Mar. 30 Th	Final date for new freshmen to submit applications for Spring Term
Mar. 30 T	Mar. 30 W	Mar. 30 Th	Final date for new transfer students, former BYU students, and graduate students to submit applications for Spring Term
Apr. 20 T	Apr. 22 F	Apr. 24 M	Tuition mail-in deadline for Spring Term
Apr. 26 M	Apr. 29 F	May 1 M	New-student orientation

Apr. 26 M	Apr. 29 F	May 1 M	Registration for all students who did not use the advance registration system
Apr. 27 T	May 2 M	May 2 T	First day of classes
Apr. 27 T	May 2 M	May 2 T	First day change in registration permitted
Apr. 27 T	May 2 M	May 2 T	First day late registration fee assessed
May 4 T	May 9 M	May 8 M	Last day for late registration and adding classes
May 5 W	May 10 T	May 9 T	Fee in effect for dropping classes
May 11 T	May 16 M	May 15 M	Last day to drop continuous classes for academic reasons
May 11 T	May 16 M	May 15 M	Last day to withdraw officially from the University without failing grades
May 14 F	May 20 F	May 19 F	Final date of application for August graduation
May 31 M	May 30 M	May 29 M	Memorial Day holiday
Jun. 4 F	Jun. 9 Th	Jun. 8 Th	Last day to officially withdraw or drop classes for any reason
Jun. 18 F	Jun. 23 Th	Jun. 22 Th	Last day of class instruction

Calendar for Summer Terms

1976	1977	1978	
Jan. 31 F	Jan. 31 Sa	Jan. 31 M	Last day continuing students may submit scholarship applications for early awarding of Summer Term scholarships
May 17 M	May 16 M	May 15 M	Last day freshman, continuing, and transfer students may submit application for scholarships for Summer Term
May 7 F	May 16 M	May 12 F	Last day students may submit advance registration forms for Summer Term
May 31 M	May 30 M	May 30 T	Final date for new freshmen to submit applications for Summer Term
May 31 M	May 30 M	May 30 T	Final date for new transfer students, former BYU students, and graduate students to submit applications for Summer Term
Jun. 11 F	Jun. 20 M	Jun. 16 F	Tuition mail-in deadline for Summer Term
Jun. 19 Sa	Jun. 24 F	Jun. 23 F	New-student orientation
Jun. 19 Sa	Jun. 24 F	Jun. 23 F	Registration for all students who did not use the advance registration system
Jun. 21 M	Jun. 27 M	Jun. 26 M	First day of classes
Jun. 21 M	Jun. 27 M	Jun. 26 M	First day change in registration permitted
Jun. 21 M	Jun. 27 M	Jun. 26 M	First day late registration fee assessed
Jun. 28 M	Jul. 6 W	Jun. 30 F	Last day for late registration and adding classes
Jun. 29 T	Jul. 7 Th	Jul. 3 M	Fee in effect for dropping classes
Jul. 5 M	Jul. 4 M	Jul. 4 T	National holiday
Jul. 6 T	Jul. 12 T	Jul. 7 F	Last day to drop continuous classes for academic reasons
Jul. 6 T	Jul. 12 T	Jul. 7 F	Last day to withdraw officially from the University without failing grades
Jul. 24 Sa	Jul. 25 M	Jul. 24 M	State holiday
Jul. 30 F	Aug. 5 F	Aug. 3 Th	Last day to officially withdraw or drop classes for any reason
Aug. 12 Th	Aug. 18 Th	Aug. 17 Th	Last day of class instruction
Aug. 13 F	Aug. 19 F	Aug. 18 F	Commencement

A reproduction of the first general catalog, printed in 1876.

PROSPECTUS

— OF THE —

Brigham Young Academy,

PROVO.

This Institution has been enabled, through the liberal endowments of President Brigham Young, to organize upon a firm and permanent basis; and the Board of Directors present hereby the Prospectus of the Academy to the Public, especially of the Southern portions of the Territory, inviting their attention and soliciting their patronage.

The Academy, purposing to be conducted according to the "Graded System," has been divided into the following Departments.

A. The Primary Department,

which will contain the students of the Primer, First and Second Reader classes, with their corresponding classes in Spelling, Writing, Elementary Arithmetic, Pronunciation and Object Lessons. Elementary Drawing will form a peculiar feature in this Department.

B. The Intermediate Department,

which will contain the students of the Third and Fourth Reader classes, with their corresponding classes in Dictation, Pronunciation, Practical and Mental Arithmetic, Grammar, Geography, Writing and Composition.

C. The Grammar Department,

which will contain the students of the Fifth Reader class, with their corresponding classes in Dictation, Elocution, Practical and Mental Arithmetic, Grammar, Rhetoric and Penmanship.

D. The Academic Department.

in which will be taught, in connection with the classes of the Grammar Department, classes in History, Natural History, Geometry, Chemistry, Geology, Astronomy, Algebra, Surveying, Bookkeeping, Technical and Artistic Drawing, Ancient and Modern Languages, and Instrumental Music: Vocal Music will be taught for the purpose of forming an Academical Choir, free of charge. These classes will be organized whenever a sufficient number of applicants would justify the Board in doing so.

E. The Theological Class.

The Academy, being established especially for the benefit of the youth of the Latter-day Saints, is conducted strictly on the principles of the Church, and for this purpose the students of each Department are instructed in the principles of divine truth in theological classes, which meet once a week under the direction of the principal, according to rules especially adopted for their management.

F. THE POLYTECHNIC DEPARTMENT.

According to the design of President Brigham Young, the Endower, the organization of a Polytechnic Department for young mechanics, is in contemplation, in order to give them practical training and theoretical instructions by experienced artisans, for which purpose suitable workshops will be erected.

G. THE DOMESTIC DEPARTMENT.

In order to give to students from a distance the opportunity of cheap and suitable board and lodging, and to their parents the assurance that ther children are under proper domestic regulations, the organization of a Dormitory or Boarding House, for students of the Academy exclusively, in charge of the Principal, is in contemplation.

H. EVENING CLASSES

In connection with the Academy, will be organized during the second and third terms, for the benefit of those, who, by their occupation, are prevented from attending the recitations during the day.

I. LECTURES.

The Board contemplate to organize, during the winter season, a course of lectures for the diffusion of useful knowledge, for which purpose qualified lecturers will be engaged from time to time.

J. THE MUSEUM.

Mineral, Botanical, and Zoological Cabinets will be collected, especially by contributions from students, donations from outside sources, and exchanges with cabinets of other institutions.

K. THE LIBRARY.

The organization of an Academical Library will be taken into consideration at the earliest opportunity.

BOOKS USED IN THE ACADEMY.

The books used in the Academy are those adopted and introduced in the district schools of the Territory, together with those required for the academic studies.

TERMS.

The academical year consists of two Semesters, of two terms each; each term consisting of ten weeks or fifty days. Vacations during the academical year will be one week from Christmas to New Year, and a few days at each Semi-Annual Conference of the Church.

The First Term for the new academical year will commence August 21st, 1876, at 9 a.m. At the end of every Semester a public examination of the principal classes in each Department will be held, of which due public notice will be given.

THE STUDENTS.

1. No Student will be registered without a written Admit, stating the Department, from the Treasurer or his Deputy.

2. No Student can rejoin his classes after a temporary absence without first presenting a written excuse to his class teacher, endorsed by the Principal.

3. Every Student shall, in and out of school, cultivate a gentlemanly or ladylike deportment, and avoid all unbecoming associations, that might reflect discreditably upon himself or the Institution, he has the honor to attend

4. No Student shall be excused from any of the regular studies in his Department, or the Theological class, without a written request of his parents or guardians.

5. In cases of serious misbehavior or repeated neglect of duty, a Student may be reprimanded by the Principal (I Instance), and if this should prove unavailing, a note, to be returned with the respective signature of the parent or guardian, will be sent. (II Instance).

6. When, in the judgment of the Faculty, the expulsion of any Student should seem unavoidable, the delinquent may be temporarily suspended, (III Instance), and the case reported to the Executive Committee for further action.

7. Every Student, on being entered upon the Records of the Academy, has to promise to comply, without reserve or equivocation, with all the rules and regulations of the Institution.

PRICES OF TUITION.

All tuition must be paid in advance.

Primary Department $3.00 per term, or fifty cents per week, for attendance less than one term.

Intermediate Department $5.00, or seventy-five cents per week, for attendance less than one term.

Grammar Department $6.00, or $1.00 per week, for attendance less than one term.

Academic Department $7.00 for the regular studies, including Higher Arithmetic, Algebra, History and Natural History or Astronomy.

For studies in Drawing, Geometry, Chemistry or Latin, One Dollar each per term. Persons, not regular students of the Academy, wishing to join any of these classes, or those wishing to study Instrumental Music, Greek, French, German, Surveying or Bookkeeping, will be charged private class rates; liberal reduction, however, will be granted to regular students of the Academy.

Professor Karl G. Maeser has been appointed Principal of the Academy, and qualified teachers will be called to his assistance in the various Departments.

THE BOARD OF DIRECTORS.

ABRAHAM O. SMOOT, President.
MYRON TANNER,
HARVEY H. CLUFF, Treasurer.
WILLIAM BRINGHURST,
LEONARD E. HARRINGTON,
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MRS. M. J. CORAY.

MYRON TANNER,
HARVEY H. CLUFF, } Executive Committee.
MRS. M. J. CORAY.

PROVO CITY, U. T., July 15th, 1876.

Twelve of the original twenty-nine registrants in BYA's first class under Karl G. Maeser in 1876, posed near the Maeser Building during the semicentennial celebration in 1925. Sitting, left to right: Sarah Eggertsen Cluff, Simon Peter Eggertsen, Joseph B. Keeler, Rose Haws, Laura Larsen, and Flora Brimhall(?). Standing, left to right: Alice Smoot Newell, unidentified, unidentified, Marietta Riggs Beesley, unidentified, and Olive Smoot Bean.

General Information

Introduction

Brigham Young University Today

Brigham Young University is a coeducational institution of higher learning established to promote a closer union between the restored gospel and all branches of learning. In addition to high standards of scholarship, the University has always fostered the development of religious faith, high moral character, and responsible citizenship. Sponsored by The Church of Jesus Christ of Latter-day Saints (Mormon), it offers the student a unique blend of spiritual and secular learning.

Situated just forty-five miles south of historic Salt Lake City in beautiful Utah Valley, the 536-acre Provo campus is posed against the magnificent backdrop of the Wasatch Mountains. With 25,000 students from all fifty states and from sixty-nine foreign countries, Brigham Young University is the nation's largest privately operated university. Its more than 1,100 full-time faculty members hold degrees from universities throughout the United States and several foreign countries. Sixty-six percent hold doctor's degrees. Instruction is offered in 150 subject areas by the University's fourteen colleges and graduate schools.

The Hawaii Campus at Oahu became a part of Brigham Young University in September 1974 by action of the Board of Trustees. An academic dean was designated to report directly to the President of Brigham Young University. Admission to the Hawaii Campus is by separate application, and curriculum, calendar, fees faculty, and student records are separate from the main Provo campus. Course offerings and other information on the Hawaii campus are contained in a general catalog obtainable for $1.50 by writing to the Admissions Office, BYU–Hawaii, Laie, Oahu, Hawaii 96762.

Students of any race, color, creed, or national origin are accepted for admission to Brigham Young University provided they meet the University's academic requirements and their personal behavior conforms to the standards of The Church of Jesus Christ of Latter-day Saints. High standards of honor, integrity, and morality; graciousness in personal behavior; application of Christian ideals in everyday living; and abstinence from tobacco, alcohol, and harmful drugs are required of every student.

At Brigham Young University, the quest for both knowledge and wisdom is symbolized in the school motto: "The glory of God is intelligence." Since learning comes from many sources—books, formal lectures, informal discussions, laboratory and fieldwork, meditation in solitude, from experience, and from the Lord—the curriculum at Brigham Young University includes instruction in the humanities, the arts, the natural sciences, the social sciences, and the revealed word of God.

Brigham Young University Goals

"Education is the power to think clearly, the power to act well in the world's work, and the power to appreciate life." Brigham Young

"Because of its unique combination of revealed and secular learning," the First Presidency of The Church of Jesus Christ of Latter-day Saints has declared, "Brigham Young University is destined to become a leader among the great universities of the world."

These seven goals point the way for the University's efforts to fulfill that destiny:

1. **Religion.** Provide religious instruction and experience that will—
   a. strengthen faith in God the Father and his Son Jesus Christ,
   b. increase knowledge and testimony of the restored gospel,
   c. magnify ability and desire to use the principles of the gospel in solving personal and public problems, and
   d. develop leadership for serving family, church, and community.
2. **General Education and Personal Development.** Provide a curriculum and other resources that will help each student achieve—
   a. the ability to think clearly, learn independently, and communicate effectively,
   b. the perspective necessary for informed behavior and meaningful contribution to society,
   c. the appreciation of beauty, and
   d. the balanced personal growth necessary for maximum individual performance.
3. **Major Areas of Study.** Foster areas of study that will provide—
   a. specific prerequisites and appropriate general background for students who intend to pursue graduate training (pregraduate study) or
   b. specialized training for a limited number of students in preparation for vocations where qualifications are well defined (specialized major) or
   c. an education that is sufficiently general and flexible to prepare students for valuable service and personal fulfillment in a wide variety of activities (other majors and general preparation).
4. **Creative Work.** Promote research, writing, and other creative work by University personnel and students

to increase knowledge, advance education, and foster the creative arts.

5. **Maximum Use of Resources.** Make maximum use of University resources by means such as—
    - a. academic procedures that facilitate the waiver of requirements or the granting of credit for college-level achievements,
    - b. admissions policies that foster optimum use of physical and human resources, and
    - c. calendars, class schedules, course regulations, graduation requirements, and teaching techniques that will promote efficiency in learning.

6. **The Standard of Excellence.** Encourage all members of the University community to pursue excellence as the standard of performance in all activities. This would include the following:
    - a. Fostering precise and mature scholarship by faculty and students
    - b. Supporting appropriate opportunities and incentives to enhance the quality of teaching and administration
    - c. Dignifying the work of all members of the University community

7. **Building up the Kingdom of God.** Increase the willingness and ability of University personnel and students to apply their personal knowledge, talents, and other resources to building up the Kingdom of God.

The History of Brigham Young University

Brigham Young University, formerly Brigham Young Academy, was founded by deed of trust executed on October 16, 1875, by Brigham Young, acting in his individual capacity and not as President of The Church of Jesus Christ of Latter-day Saints. The deed enumerated Abraham O. Smoot (President of the Utah Stake), William Bringhurst, Leonard E. Harrington, Wilson H. Dusenberry, Martha J. Coray, Myron Tanner, and Harvey H. Cluff, all of Utah County, as the trustees.

On November 22, 1875, the board organized Brigham Young Academy and elected Abraham O. Smoot chairman. At that time the Timpanogos Branch of the University of Deseret, located in Provo, Utah, had just been discontinued, and, because it was too late to arrange a complete school year, the board decided to hold two preliminary terms of Brigham Young Academy. Warren N. Dusenberry, who had been principal of the Timpanogos Branch, was selected as its first principal. The first term did not actually get under way until January 3, 1876, and the second term ended April 15, 1876. At that time Principal Dusenberry resigned to devote more time to his law practice. (He later became probate judge of Utah County and held other political offices.)

Ten days later, President Brigham Young, acting for the Board of Trustees, requested Dr. Karl G. Maeser, the first convert to the Church from Saxony, Germany, to become the new Principal. "Brother Maeser," said the President, "We have been considering the establishment of a Church school, and are looking around for a man—a man to take charge of it. You are the man, Brother Maeser. We want you to go to Provo to organize and conduct an academy to be established in the name of the Church—a Church school."

A few days later Dr. Maeser called at the office of President Young and said, "President Young, I am ready to go to Provo. What are my instructions?"

"Only this," replied the President. "I want you to remember that you ought not to teach even the alphabet or the multiplication tables without the spirit of God. That is all. God bless you. Goodbye."

Dr. Maeser accepted this all-embracing charge, believing that the ultimate good in education could be summed up in the words of the Master: "Be ye therefore perfect, even as your Father which is in Heaven is perfect." In one of his memorable sermons Dr. Maeser stated the real purpose of the school by saying, "Not by bread alone, neither for bread alone does man live. There are higher objectives yet to be attained, other truths to be learned, and greater work to be done." Years later, consistent with that philosophy, the school adopted as its motto this revelation of the Lord: "The glory of God is intelligence."

The first faculty consisted of Principal Maeser and two assistants, Milton H. Hardy and Miss Teenie Smoot. The school started that year with sixty-five students* but had ninety-eight at the end of the term.

The first home of Brigham Young Academy was Lewis Hall, a mercantile building near the center of Provo, and the first campus consisted of a few square yards of ground at the back of the school. This building was later described by Mr. Justice George Sutherland, of the Supreme Court of the United States, one of the Academy's first students, as being "a structure without beauty or grace or any other aesthetic feature calculated to invite a second look. . . . Fortunately, the building was not the school, but only the house in which the school lived; and the discovery of the school itself was as though I had opened a rough shell and found a pearl."

On June 15, 1877, Brigham Young executed a second deed of trust, naming the same trustees and providing that in the event of death or removal of any trustee, the successor was to be appointed by him (Brigham Young) or his heirs.

On January 22, 1884, the Lewis Building was destroyed by fire. The closing of the school was averted only by a heroic faculty (who sometimes worked for an entire year without compensation) and by financial sacrifice on the part of Abraham O. Smoot and others. However, with the loss of only one day of school, classes were continued in the ZCMI warehouse and other accommodations until January 1892, when the Academy was moved into what is known as the Education Building on the Lower Campus, the first structure built especially for the Academy. Much of its $100,000 cost was made available through the personal credit of Abraham O. Smoot, David John, and Harvey Cluff, of the Board of Trustees.

On June 8, 1888, Wilford Woodruff, President of The Church of Jesus Christ of Latter-day Saints, organized for the Church a general Board of Education consisting of nine members. The board came to play an increasing role in the affairs of Brigham Young Academy even though the school was still legally separate from the Church and even though the power of appointment of the Board of Trustees remained with the heirs of Brigham Young.

The transition of Brigham Young Academy into the university of the Church was marked by periods of great financial distress, Brigham Young having died before providing fully for the endowment of the institution. There were a number of times when the trustees, with no funds for its operation, were faced with threatened closure of the school; but President Smoot, Dr. Maeser, his faculty, and friends of the institution, often at great personal sacrifice, carried on and saved the Academy.

In 1895 the title of the head of Brigham Young Academy was changed from "Principal" to "President," and in 1903 the name of the institution was changed to Brigham Young University.

Before the name of the institution was changed, the highest credentials offered graduates were Bachelor of Pedagogy (B.Pd.) and Bachelor of Didactics (B.D.), issued upon completion of four years of Normal work.

On July 18, 1896, the Academy was incorporated as an educational institution. The articles of incorporation provided that

> Inasmuch as this corporation is supported and sustained by the members of the Church of Jesus Christ of Latter-day Saints in good standing, acting

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*On the first day of registration there were only twenty-nine students.

by and through the First Presidency of said Church; and that they have acquired its property . . . and are therefore the only persons interested in said property . . . it is therefore declared that said members acting collectively at their General Conference, or through their representatives, to wit: the First Presidency of said Church of Jesus Christ of Latter-day Saints . . . are the persons regarded as stockholders of said corporation, although no stock has been issued, and as the source of authority and power for the selection of officers of this corporation.

The right of appointment of the Board of Trustees was granted to the First Presidency. By this action the Church assumed the indebtedness of, and accepted the responsibility for maintaining, the institution. The result of this incorporation was to give legal effect to the voluntary relationship that had previously existed between Brigham Young Academy and the Church.

In 1904 the students and faculty began negotiations with Provo City for the purchase of seventeen acres of land, generally known as "Temple Hill," that overlook the city. The land, purchased for $2,000, provided the beginning of a new, or upper, campus, where the University is now located.

Principals of Brigham Young Academy and Presidents of Brigham Young University

Warren H. Dusenberry, first Principal of Brigham Young Academy, served the institution during its first two experimental terms from November 22, 1875, to April 15, 1876. He recommended Karl G. Maeser as his successor.

Karl G. Maeser served as the second Principal of the Academy from April 24, 1876, to January 4, 1892, a period of sixteen years. His administration will be remembered primarily because of his masterful teaching. He was the spiritual architect of the school, stressing not only acquisition of academic knowledge, but also the development of character and a reverence for the revealed word of God. He often said that no infidel would go out from his school.

Benjamin Cluff, Jr., a former student of Karl G. Maeser, served as the Academy's third Principal from January 4, 1892, until July 20, 1895, when the title of the office was changed to "President." He then served as its first President until December 23, 1903. He was one of the first native Utahns to earn a degree, having received the Bachelor of Science degree in 1890, and a master's degree in 1894, from the University of Michigan. His administration was effective in changing the school from one still largely a normal school with a very small college department into the beginnings of a university.

President Cluff was also instrumental in founding an alumni association, and he encouraged student organizations and activities. During his administration, two school papers were begun; athletic sports such as football, basketball, and track were encouraged; and the school colors—blue and white—were chosen. He established the first summer school and added new departments and laboratories.

In 1898, while still President, he became the leader of an expedition to Mexico and Central and South America, hoping to prove the authenticity of the Book of Mormon. But, owing to a variety of reasons, this expedition was not allowed to complete its mission. In June of 1902, President Cluff returned to Provo and resumed his duties as President, but, on December 23, 1903, he resigned to become the manager of a rubber plantation in Central America.

On April 16, 1904, after having acted as President of the University while Benjamin Cluff, Jr., was in Mexico and Central and South America, George H. Brimhall was appointed the second President of Brigham Young University. A former student of Dr. Karl G. Maeser, he too was a dynamic speaker and a great molder of character. He carried on the tradition of Karl G. Maeser but accepted the innovations of Benjamin Cluff, Jr.

During President Brimhall's administration, graduate work beyond the bachelor's degree was introduced, and the first master's degrees were conferred in 1918. The school spirit was furthered by the organization of the students into a student body. Printing of the school yearbook, the **Banyan**, was begun, and a huge white Y, probably the largest school emblem in the world, was placed on the mountainside east of Provo. President Brimhall served as President until July 1, 1921.

Dr. Franklin S. Harris, a former student under President Brimhall, became the third president of Brigham Young University on July 1, 1921. Dr. Harris had received his Ph.D. from Cornell University in 1911 and had established a worldwide reputation as an agricultural scientist. He served until June 30, 1945, a period of twenty-four years—the longest term of any president. During his administration, academic gains of great significance were made. The University was accredited by the Northwestern Association of Secondary and Higher Schools in 1922, by the American Council on Education in 1923, by the National Association of Colleges and Universities in 1924, by the Association of American Colleges in 1926, and by the Association of American Universities in 1928. During his administration the University was organized into five colleges and two divisions and the graduate school was formally organized. In reality, the school had become a university.

It was President Harris who envisioned the present expanded upper campus of the University and made it possible by his wise purchasing of lands surrounding the original upper campus. It was also during his tenure that the University administration was more closely linked to the general administration of the Church by the appointment, in 1939, of all members of the Quorum of the Twelve Apostles as members of the Board of Trustees of the University.

During his administration he took three official leaves of absence to represent the United States on foreign agricultural missions. During these times three different individuals served as Acting Presidents: L. John Nuttall, Jr., from 1926 to 1927; Edward H. Holt, in 1929; and Christen Jensen,, during 1939 and 1940. President Harris resigned in 1945 to accept the Presidency of Utah State Agricultural College.

On July 1, 1945, Howard S. McDonald became the fourth President of the University, and he served until October 30, 1949. President McDonald had been awarded his B.S. degree by Utah State Agricultural College in 1921 and his M.A. degree by the University of California in 1925. (Later that school was to award him his Ed.D., in 1949, and his H.H.D., in 1952). He had been Deputy Superintendent of Schools and a stake president in San Francisco; and, at the time of his appointment, he was serving as Superintendent of Schools for Salt Lake City.

In the postwar era of expanding collegiate enrollments, Brigham Young University, under President McDonald's direction, met the challenge of expansion by emphasizing student employment and student housing and by increasing the number of faculty members. Campus Sunday Schools and Mutual Improvement Associations were organized to facilitate student religious and Church activity. The graduate school and the student counseling service were both reorganized. In 1949, President McDonald resigned to become president of Los Angeles City College and of Los Angeles State College of Applied Arts and Sciences, in Los Angeles.

Dr. Christen Jensen again served as Acting President from November 1949 until February 1951.

In 1950 the Board of Trustees selected Dr. Ernest L. Wilkinson, an alumnus of the institution, to be its new President. Before President Wilkinson became a student at the University he had been a soldier in the Student Army Training Corps on the University campus during World War I. The very room that had served as his barracks became his office when he became President some thirty-three years later.

After graduating from the University in 1921, he taught for two years at Weber College, attended George Washington University Law School (graduating at the head of his class), and obtained his Doctor of Juridical Science from Harvard University Law School.

After this he became professor of law at New Jersey Law School in Newark (then the largest law school in the country). In 1935 he transferred to Washington, D.C., where he established his own firm (now Wilkinson, Cragun, and Barker), of which he is still the senior partner.

President Wilkinson served from 1951 to January, 1964, when he resigned to run for the United States Senate. During the interim Dr. Earl C. Crockett served as Acting President. On being defeated in November of that year, Dr. Wilkinson was asked by the First Presidency to resume his role as President of the University. He served until August 1, 1971.

During President Wilkinson's administration the following developments occurred:

1. The General Authorities created a stake of Zion among the students, which has since grown into ten stakes and 119 branches, greatly facilitating the teaching and practice of Christianity as contemplated by Brigham Young and Karl G. Maeser.
2. The Board of Trustees authorized a Churchwide recruitment program that increased enrollment from 4,002 to 25,116—the students coming from every state in the Union and from over seventy foreign countries. By 1953 the University had become the largest church-related, and by 1965 the largest private, university in the country. Paralleling the increase in enrollment was the establishment of a national reputation for high student standards and respect for law and order, for, during the student disorders of the 1960s, Brigham Young University distinguished itself as the only large university in the country to be free from disturbance or riot. In 1970 the board placed an enrollment limit of 25,000 students on the University.
3. The Board of Trustees approved the employment of a faculty of over a thousand full-time members, who not only are proficient in their respective fields of discipline, but have a testimony of the gospel of Jesus Christ, which they impart to their students.
4. Owing to this increase in students and faculty, the Board of Trustees approved the organization of thirteen undergraduate colleges—Biological and Agricultural Sciences, Business, Education, Family Living, Fine Arts and Communications, General, Humanities, Industrial and Technical Education, Nursing, Physical and Engineering Sciences, Physical Education, Religious Instruction, and Social Sciences —in place of the five established prior to that time. The Board also authorized the giving of master's degrees in sixty-nine departments, and doctorate degrees in twenty-two departments.
5. The Board of Trustees authorized the establishment of the J. Reuben Clark Law School, the first exclusive graduate school of the University.
6. The Board of Trustees appropriated over $100 million to build a campus of 380 buildings (297 permanent and 83 temporary) that today is recognized as one of the most beautiful in America.

Dallin H. Oaks took office as the sixth President of Brigham Young University on August 1, 1971. President Oaks is a recognized legal scholar, who had graduated with high honors from BYU in 1954 and received his Doctor of Laws degree **cum laude** from the University of Chicago Law School in 1957. He was also editor-in-chief of **The University of Chicago Law Review.** After graduation he served as law clerk to Chief Justice Earl Warren of the United States Supreme Court, then practiced law in Chicago for three years with the firm of Kirkland and Ellis, and, from 1961 until his appointment at Brigham Young University, was a professor of law at the University of Chicago. During almost a year of this time he also served as associate dean and as acting dean of the law school.

When appointed President of BYU, just before his thirty-ninth birthday, President Oaks was also serving as executive director of the American Bar Foundation (the legal research affiliate of the American Bar Association) and on the editorial boards of three professional journals. He is the author or coauthor of four books and numerous articles in professional and Church publications. During his residence in Chicago, President Oaks also served as a counselor in his stake presidency for over eight years. In the words of Church Commissioner of Education Neal A. Maxwell at the time of his appointment, "He brings much talent in the thrust of youth to the presidency of the key institution in the Church's educational system where, with the help of a dedicated faculty and staff and a special student body, a new and vital chapter in the history of BYU will now be written."

Accreditation

BYU offers a full university curriculum, and its credits are recognized and accepted to the same extent as those of other leading American colleges. The University is affiliated with the following educational associations.

Adult Education Association of the United States of America
American Association of Colleges for Teacher Education
American Association of Colleges of Nursing
American Association of Collegiate Registrars and Admissions Officers
American Association of University Women
American Chemical Society
American College Public Relations Association
American Council on Education
American Home Economics Association
American Society for Engineering Education
American Society of Journalism School Administrators
American Theatre Association
Association for the Coordination of University Religious Affairs
Association of American Colleges
Association of Continuing Higher Education
Association of Research Libraries
Bibliographic Center for Research, Rocky Mountain Region
College Entrance Examination Board
College Placement Council
Council of Graduate Schools in the United States
Department of Baccalaureate and Higher Degree of The National League for Nursing
Educational Films Library Association
National Association of Student Personnel Administrators
National Commission of Accrediting
National Council of Family Relations
National League for Nursing
National University Extension Association
Speech Communication Association
Western Association of Graduate Schools
Western Council for Higher Education in Nursing
Western Interstate Commission on Higher Education

In addition, Brigham Young University is fully accredited by the following organizations:

American Assembly of Collegiate Schools of Business
American Association of Marriage and Family Counselors
American Council on Education for Journalism
American Library Association
American Psychological Association
American Speech and Hearing Association
Council of Baccalaureate and Higher Degree Programs, National League for Nursing
Council of Social Work Education
Engineers' Council for Professional Development for the four-year programs leading to Bachelor of Science degrees in chemical engineering, civil engineering,

electrical engineering, and mechanical engineering; the five-year programs leading to Master of Engineering degrees in civil engineering, electrical engineering, and mechanical engineering; the four-year programs leading to Bachelor of Science degrees in design and graphics technology, electronics technology, and manufacturing technology; and the two-year program in electronics engineering technology.
International Association of Counseling Services
National Accrediting Agency for Clinical Laboratory Sciences
National Association of Schools of Music
National Council for Accreditation of Teacher Education for preparing elementary teachers, secondary teachers, school service personnel, and for conferring the master's degree.
National League for Nursing
Northwest Association of Schools and Colleges
Utah State Board of Nursing for all undergraduates in nursing.
Utah State Department of Education
Utah State Department of Public Instruction in cooperation with the United States Office of Education for the training of vocational home economics teachers.
American Bar Association (provisional)

The BYU Code of Honor

The Church of Jesus Christ of Latter-day Saints sponsors Brigham Young University in order to provide a university education in an atmosphere consistent with the ideals and principles of the Church. The maintenance of high standards of personal behavior and appearance is essential to the preservation of that atmosphere and to the development of men and women who personify these ideals and principles. By enrolling or accepting employment at Brigham Young University a person signifies his willingness to live in accordance with the following principles, whether on or off campus:

1. Abide by the standards of Christian living taught by The Church of Jesus Christ of Latter-day Saints
   This includes graciousness and consideration for others and the observance of high principles of honor, integrity, and morality.
2. Be honest in all behavior
   This includes not cheating, plagiarizing, or knowingly giving false information.
3. Respect personal rights
   This includes—
   a. not physically or verbally abusing any person and not engaging in conduct that threatens or endangers the health or safety of others, and
   b. not obstructing or disrupting the study of others; the performance of official duties by University officers or employees; the teaching, research, disciplinary, administrative, or other functions of the University; or other authorized activities on University premises.
4. Respect property rights
   This includes refraining from theft, concealment, damage, or misuse of the property of others.
5. Obey, honor, and sustain the law
6. Avoid drug abuse
   This includes refraining from the possession, use, or distribution of any narcotic or dangerous drug (as defined by applicable law), except as prescribed by a licensed medical practitioner.
7. Comply with all University regulations
   This includes compliance with rules relating to campus organizations and to the use of University or off-campus housing or other facilities.
8. Observe the Word of Wisdom
   This includes abstinence from alcoholic beverages, tobacco, tea, and coffee.
9. Live the law of chastity
   This includes abstinence from all sexual relations outside the bonds of marriage.
10. Observe high standards of taste and decency
    This includes refraining from disorderly, lewd, indecent, or obscene conduct or expression.
11. Observe University standards of dress and grooming
12. Help others fulfill their responsibilities under this Code

Confidentiality of Records Policy

The policy of Brigham Young University concerning confidentiality of student academic records reflects a reasonable balance between the obligation of the institution for the instruction and welfare of the student and its responsibility to society. The University will make every effort to maintain student academic records in confidence by keeping information from individuals who are not authorized to receive it or who might use it for illegitimate purposes.

While the Family Educational Rights and Privacy Act of 1974 which controls access to the student records of most universities does not apply to Brigham Young University, the University will make every effort to extend to students and their families the same rights granted by the act. Upon presentation of appropriate identification and under circumstances which preclude alteration or mutilation of records, a student will be able to inspect all records which are not considered by the University to be held under a pledge of confidentiality or considered to be private records of University personnel. A student is entitled to an explanation of any recorded data and may initiate action leading to a hearing, if necessary, to correct or expunge information he considers inaccurate or misleading.

Faculty and administrative officers who have a legitimate need to use student records will be allowed access to such records as needed without prior permission from the student. A request from an educational institution to which the student has applied for admission or from a lending institution from which the student is seeking assistance will be granted without the student's permission. Similarly, data will be furnished to university accrediting bodies and governmental officials without permission of the student.

No student information other than public information will be given to any third party (except those mentioned above) without written consent of the student, and then only those records accessible to the student. The term **third party** is construed to include parents, employers, government agencies, or any other people or organizations. Parents or guardians may have access to grade reports and other reports of a student's activity if the parents establish to the satisfaction of the University that they are providing one-half or more of the student's support. Court orders and subpoenas for records will be referred to the University's legal counsel and acted upon according to his directions. The student will be notified of information to be submitted in response to subpoenas or court orders prior to actual submission of the material.

Public information will be released to news media and to others upon request. Public information is defined as follows:

1. Name of student
2. Local address and telephone number of student
3. Hometown city and state of student
4. Year in school (junior, graduate student, etc.)
5. Verification of current enrollment
6. Dates of enrollment
7. College in which registered
8. Degrees conferred, dates, major or field of concentration, and honors received
9. Birth date

The registrar or assistant registrar may, under proper conditions, give the following additional information.

1. Hometown address and telephone number of student
2. Names and addresses of parents
3. Name of spouse

The Academic Program

Admission to Undergraduate Study

Students of any race, color, creed, or national origin are accepted for admission to Brigham Young University provided they maintain ideals and standards in harmony with those of The Church of Jesus Christ of Latter-day Saints and meet the University's academic requirements. High standards of honor, integrity, and morality; graciousness in personal behavior; application of Christian ideals in everyday living; and abstinence from tobacco, alcohol, and harmful drugs are required of every student.

Admission to BYU as an undergraduate is based upon consideration of an official application and results of the American College Test. Applications may be obtained from high school or junior college counselors, stake admissions advisers, or by writing to the Admissions Office, A-153 ASB.

American College Test

The American College Test is given nationally five times each year, and students are asked to complete the test during the last semester of their junior year in high school. All high school applicants and transfer students having fewer than 24 semester hours (32 quarter hours) of credit must submit ACT scores. The test must be completed early enough for the results to be in the Admissions Office prior to the deadline date for the semester in which the student intends to enroll. Test results arrive at the University approximately four weeks after the test is given, and tests are administered in October, December, February, April, and July.

The tests are administered in October, December, February, April, and July.

Students must register for these tests at least one month in advance of the test date. Registration materials may be obtained from most high school or college counseling offices or by writing to American College Testing Program, P.O. Box 168, Iowa City, Iowa 52240.

Application Deadlines

Students wishing to be considered must submit all materials to the University on or before the deadline date for the semester in which they intend to register. These dates are as follows:

Fall Semester 1975	
New freshmen	April 30, 1975
Transfer, former*, and nondegree-seeking graduate students	July 15, 1975
Fall Second Block 1975—October Entry	
All applicants	September 30, 1975
Winter Semester 1976	
All applicants	December 1, 1975
Winter Second Block 1976—March Entry	
All applicants	January 30, 1976
Spring Term 1976	
All applicants	March 30, 1976
Summer Term 1976	
All applicants	May 31, 1976

*All BYU students who have not attended the University the previous semester must reapply for admission.

Admissions Evaluation Fee. A $15 nonrefundable admissions evaluation fee must accompany all applications for admission. Checks or money orders are requested and should be made payable to Brigham Young University.

Social Security Number. Each student entering the University must have a social security number for identification on student records. These may be obtained at the nearest social security office or local post office. International students will be assigned an appropriate identification number by the Admissions Office.

New Freshman Applicants

Primary factors considered in granting admission to BYU are the results of the American College Test (ACT), the student's grade-point average, and the confidential interview by the student's bishop or clergyman. Other pertinent information, such as career choice, application entry date, and geographic location, will be reviewed by the University Admissions Committee.

To be considered for admission, a student must submit the following required materials by the appropriate deadline dates listed above:

1. The completed application form (all parts)
2. Results of the American College Test
3. Official transcripts of all academic work completed, including high school and post-high-school work
4. A $15 nonrefundable admissions evaluation fee
5. The student's commitment and confidential report completed by the student and his bishop or other appropriately designated church or school official

Students nineteen years of age and older who have not completed high school may be considered for admission by submitting the results of the high school level General Educational Development Test in addition to the required materials listed above.

Early Admission. High school students who wish to be considered for admission to Brigham Young University prior to high school graduation must—

1. have cumulative high school grade-point averages of 3.50 (B+) or higher on all work to date,
2. achieve composite standard ACT scores of 24 or higher,
3. submit unconditional letters from parents or guardians recommending enrollment in a college program prior to high school graduation,
4. submit unconditional letters from high school counselors or principals recommending enrollment in a college program prior to high school graduation, and
5. complete all other requirements as defined under New Freshman Applicants.

All requests for early admission are subject to individual consideration by the Admissions Committee, and the final decision rests with that committee.

Advanced Placement (AP). Students who complete the advanced placement examinations offered to high school seniors and score a composite grade of 5, 4, or 3 in any subject may be granted up to 8 semester hours of college credit in that subject.

College Level Examination Program (CLEP). Brigham Young University will grant 3 semester hours in each subarea of the general examination in which the student scores 600 or higher and will waive 3 semester hours of general education credit in each area (except mathematics) in which the student scores between 560 and 599. Brigham Young University will also grant credit for most of the CLEP subject examinations. The credit granted is equivalent to the course which is taught at BYU. For additional information, contact the Credit Evaluation Office, B-150 ASB.

New Transfer Applicants

The primary factors considered in granting admission to a transfer student are grade-point averages for all previous college work and the results of a confidential interview with the student's bishop or clergyman. Other factors, such as leadership ability and missionary and military service, will be given consideration by the University Admissions Committee.

The following materials must be submitted by the appropriate deadline dates:

1. The completed application form (parts A and B)
2. Official transcripts of all previous college work (An official transcript from each school attended is mandatory.)
3. A $15 nonrefundable admissions evaluation fee
4. The confidential interview report completed by the student and his bishop or other appropriately designated church or school official

Transfer students should have approximate grade averages of 2.5 (A=4.0). Students with fewer than 24 semester hours of transfer credit must also submit official high school transcripts (part C) and results of the American College Test.

New Students from Foreign Countries

In addition to meeting the necessary academic qualifications described above for new freshmen or transfer students, applicants from foreign countries must submit a General Information and Confidential Statement of Finance form and an English Proficiency Test score. Correspondence should be directed to the Admissions Office, A-153 ASB.

Continuing BYU Students

Registration materials are prepared each semester for all students enrolled as daytime students during the previous semester. Students who attended evening classes, special courses or conferences, or classes at centers for continuing education must apply for admission or readmission to register for daytime classes.

Notice of Acceptance

All students accepted for admission to the University should receive an official certificate of admission. The certificate of admission is valid only for the semester indicated, and students who wish to be considered for any other semester must notify the Admissions Office in writing prior to the designated deadline.

Admissions Advising and Counseling

It is the desire of the University to be of service to all who seek admission to BYU regardless of their admissibility. For this reason, several sources of information and counseling have been established to aid the student.

In most stakes of the Church, an alumnus of BYU has been called to act as an admissions adviser. He is given special training and information to assist students applying for admission, financial aids, and the Honors Program. The advisers also have information about other Church schools and institutes. For more information contact A-81 ASB.

The Office of Admissions Counseling also offers assistance to students who are considering BYU and feel the need for professional guidance and evaluation. If a student is not admissible, this office will counsel him regarding alternate educational experiences and will suggest a program that will qualify him for future admission to BYU. Any student who would like to meet with an admissions counselor should contact the Admissions Counseling Office, A-183 ASB.

The Office of School Relations is a service agency designed to assist both high school and junior college students. In addition to providing information for administrators and counselors in both public and private schools, this office also arranges campus tours for interested students. Correspondence should be addressed to the Office of School Relations, A-183 ASB.

New Student Orientation

Prior to the beginning of each semester, a special new-student orientation program is held for all new incoming freshmen and transfer students. Each academic college sponsors its own orientation program, allowing flexibility to the program content.

The new student orientation program is designed to help the new student make the personal, social, and academic adjustments to a successful college career. Information about orientation is mailed to new students one month prior to the semester for which the student has been admitted.

Registration

Every student attending classes at Brigham Young University must register and pay tuition. Continuing students should obtain registration instructions and class request forms from their college advisement centers twelve weeks prior to the semester for which they wish to register (or ten weeks prior to Spring or Summer terms). The class request form should be returned to the college advisement center by the end of the eighth week. Class request forms will continue to be accepted from the eighth week until the beginning of school, but students will lose their priority in receiving classes. A registration confirmation form listing the student's class schedule and tuition charge is mailed to the student three weeks prior to the semester. The student's registration is finalized by the payment of tuition. New and former students receive their registration instructions and class request forms through the mail.

Late Registration. Students who do not complete their registration before the first day of classes must use the late registration procedures outlined in the Class Schedule. A late registration fee of $20 is charged.

Changes in Registration. In order to minimize changes in registration, students should exercise great care in planning their schedules. When a change in registration becomes necessary, students must obtain a change-in-registration card from their college advisement center or from the Registration Office. The approval and signature of each instructor involved in the change are required.

Changes in registration may be made without charge for the first ten days of the change-in-registration period in the Fall and Winter semesters and during the first five days of the period in the Spring and Summer terms. Thereafter, a $5 late fee is charged for classes dropped. No classes may be added after the last day of the late registration period. Complete change-in-registration procedures are described in the **Class Schedule.**

Withdrawal from Classes. Any student withdrawing from individual classes must follow the University procedure outlined in the **Class Schedule.** A student who does not officially withdraw will receive a failing grade.

Withdrawal from Evening Classes. A student withdrawing from any evening class must do so by notifying the Evening School Office and by completing the withdrawal forms. A student enrolled in evening classes who does not properly withdraw will receive a failing grade.

Complete Withdrawal from the University. A student discontinuing his entire registration at the University is required to clear his termination through the Office of the Dean of Student Life (B-238 ASB) and may be required to clear through the office of the dean of his college.

Limitation on Credit in One Semester. An undergraduate student in good standing may register for as many as 18 hours of credit in any one semester by following the regular registration procedure. Any student who has completed 15 or more hours of college work and who has a cumulative grade-point average of 3.5 (or a GPA of 3.5 in the previous semester) may register for 21 hours with the consent of his dean and the Dean of Admissions and Records.

Classes Taken for Audit. Students who wish to audit classes are required to wait until the last day of late registration. Audit classes must be submitted to the

Registration Office on a change-of-registration card signed by the instructor. As of Winter Semester 1975 audit classes do not appear on the student's transcript.

Records

Records Office, B-150 ASB

Classification of Students. At the beginning of each semester, students are classified for that semester as follows:

Credit hours earned	Classification
1-31.9	freshman
32-63.9	sophomore
64-95.9	junior
96 and over	senior

Full-time registration status is determined on the basis of a minimum 8½ semester hours. All students registering for fewer hours than the applicable minimum are defined as part-time students.

Students who have completed all requirements for the bachelor's degree and who are not seeking a second bachelor's degree should register as graduate students in a degree or nondegree program. Procedures for admission to the Graduate School are outlined in the **Graduate School Catalog.**

Credits. Approved University credit may be earned in the following ways:

1. Complete work in regular courses offered at BYU.
2. Complete college-level courses through Home Study, Evening School, or Continuing Education programs.
3. Transfer credit for courses completed at an accredited college to Brigham Young University. Credit from other schools must be submitted for evaluation to the Admissions Office, A-153 ASB, upon application for admission to the University.
4. Pass a special examination in any course offered by the University. The courses offered in Religious Instruction are an exception to this rule. Arrangements for the examination are made through the department chairman of the department offering the course. A fee of $10 is charged prior to taking each special examination. If the student successfully passes the examination, he is charged $5 per credit hour (not to exceed a total of $50), which is paid to the Cashier's Office.
5. Complete the Advanced Placement (AP) examinations. Students who score a composite grade of 5, 4, or 3 in any subject may be granted up to 8 semester hours of college credit in that subject.
6. Complete the College Level Examination Program (CLEP). Brigham Young University will grant 3 semester hours for each subarea of the general examination in which the student scores 600 or higher and will waive 3 semester hours of general education credit in each area (except mathematics) in which the student scores between 560 and 599.

   Brigham Young University will also grant credit for most of the CLEP subject examinations. The credit granted is equivalent to the course which is taught at BYU. For additional information, contact the Credit Evaluation Office, B-150, ASB.
7. Serve in the armed forces. A student who has been on active duty in the service for more than one year can receive 2 semester hours in physical education and 4 semester hours in military science.

A Guide to the Evaluation of Educational Experiences in the Armed Services, published by the American Council on Education, has been adopted by Brigham Young University as a basis for evaluating college-level training and experiences in the armed forces. Students desiring credit should bring their military service DD-214 forms to the Credit Evaluation Office, B-150 ASB.

Grading System

Grade-point averages are computed by assigning letter grades the following values:

A	4.0	C	2.0
A—	3.7	C—	1.7
B+	3.4	D+	1.4
B	3.0	D	1.0
B—	2.7	D—	0.7
C+	2.4	E	0.0

The A grade is given only to those students whose intellectual capacity and academic achievement are exceptional. Work of quality somewhat higher than average, but not of exceptional quality, receives a B. C indicates that the student has completed classroom work, outside assignments, and examinations in an average manner. Students who fail to reach the average academic achievement, but who do work of a quality still acceptable to the University, are given a D grade. A D grade receives credit even though the work done is not fully satisfactory. Students failing to achieve work of minimum University quality receive an E grade, for which no credit is given.

If a student withdraws officially from a class during the first two weeks of a semester, his permanent record will not show a registration for that class.

If a student properly withdraws from a class between the second and fifth weeks, his record will be marked W.

If a student discontinues attending a class at any time during the semester without completing the official withdrawal process, he will receive a grade of UW (Unofficial Withdrawal). A UW has the same negative value as an E in the computation of grade-point averages.

The letter grade I (incomplete) is used to indicate that the required work for a class has not been completed. An I is given only when circumstances beyond the student's control make it impossible for him to complete the required work within the prescribed time. Arrangements must be made between the instructor and the student prior to the end of the semester. The I is never given when a student is failing or has failed a course. If there is justification for an I grade, the student has one year in which to effect a change without having to reregister and pay for the course a second time. (Missionaries and servicemen receive special consideration.) An Authorization for Change of Incomplete form must be processed through the Records Office upon completion of classwork. A $3 fee (payable at the Records Office) is required for changing an incomplete to a letter grade. The student should be aware that an incomplete grade (I) is not computed in his grade-point average until one year has elapsed, at which time it will be changed to an E and computed as a failing grade if the course requirements have not been completed.

A grade of T is given to indicate course work in progress. This grade is only used in certain approved courses in which the course work may extend beyond the semester. The grade of T may be changed to a letter grade of A, B, C, D, or P upon completion of the work and submission of a Grade Change Authorization form to the Records Office.

Once recorded in the Records Office, no final grade may be changed except to correct the permanent record when an error in calculation has been made by the teacher, in processing by the Computer Center, or by the Records Office. When such corrections need to be made, an official Grade Change Authorization form must be completed and sent to the Records Office.

Grade reports are mailed at the end of each semester to students who leave self-addressed, stamped envelopes containing their social security number at the Records Office. Grade reports are also sent to the parents of unmarried freshman students under twenty-one years of age.

Repeating Classes. Classes may be repeated in the following ways:

1. Repeat BYU courses at Brigham Young University
2. Repeat at Brigham Young University courses taken at another university
   (A statement of equivalency must be supplied by the BYU department chairman involved.)
3. Repeat at another institution courses taken at that institution and have the credit transferred to Brigham Young University.

Note: A course repeated at an institution other than the one at which it was taken originally and other than at BYU will not be counted as a repeat.

When a class has been repeated, the grade used in the computation of the student's grade-point average is the grade earned the last time the repeated class was taken. Students are required to notify the Records Office following the completion of a repeated class; otherwise, a change will not be made.

Academic Standards

Students admitted to the University are expected to show satisfactory academic achievement and progress. Academic achievement is determined on the basis of the grade-point average earned by each student.

To graduate from BYU a student must have earned a 2.0 cumulative grade-point average on all BYU work and all college work. Academic standards regulating continuing student progress are consistent with the graduation requirements.

Students at any class level with a cumulative grade-point average of 2.0 or above will be considered in good academic standing.

Academic Warning will be given if the semester grade-point average is below 2.0, even though the cumulative is at or above 2.0.

Academic Probation will be given when the cumulative grade-point average falls below 2.0, with the exception of freshman-level students completing their first semester at Brigham Young University. These individuals will initially be given Academic Warning.

Academic Suspension may result from a student's failure to bring his cumulative grade-point average up to 2.0 or above during the semester or term in which he is on academic probation. Academic Suspension indicates that the student may be denied continued enrollment privileges. Students who have been suspended academically a second time are denied further enrollment unless there were extraordinary extenuating circumstances leading to their dismissal.

Students who have been academically suspended must establish their eligibility for readmission to the University by contacting the Academic Standards Office. Generally, the student should expect that specific preparatory work must be completed before an application for readmission will be considered. Methods of qualifying for readmission may be determined by contacting the Academic Standards Office or referring to additional information in the class schedule published for each semester or term.

A student, whether he is on probation or not, may be subject to suspension from the University if it is determined that he is deficient in his academic achievements and progress.

Degrees Offered

Associate Degrees

The University confers the following associate degrees:

Associate of Arts Degrees

Church Drama Specialist
Costume Specialist
Performance Specialist
Technical Theatre Specialist
University Studies

Associate of Science Degrees

Business Technician
Cartographic Technician
Chemical Engineering Technician
Child Development
Civil Engineering Technician
Data Processing Technician
Drafting Technician
Electrical Technician
Electronics Technician
Family Studies
Graphic Arts Technician
Law Enforcement
Library Technician
Light Building Construction Technician
Materials Science Technician
Nursing
Photo Technician
Piano Technician
Public Health
Secretarial Technician
Welding Technician

Baccalaureate Degrees

Each department, on the basis of appropriateness for the area of study involved, determines which type of bachelor's degree it awards. Some departments are permitted to offer both. Each candidate will receive the degree designated by his department. The University confers the following baccalaureate degrees:

Bachelor of Arts Degrees

Archaeology
Asian Studies
Chinese
Communications
Comparative Literature
Economics
English
European Studies
French
German
Greek
History
Humanities
Interior Environment
International Relations
Italian
Japanese
Latin
Latin American Studies
Mathematics
Music
Physical Education-Women
Physics
Political Science
Portuguese
Russian
Spanish
Spanish-Speaking
  American Studies
Theatre and Cinematic Arts
University Studies

Bachelor of Science Degrees

Accounting
Agricultural Economics
Agronomy
Animal Science
Anthropology
Botany
Building Construction Technology
Business Education
Business Management
Chemical Engineering

Chemistry
Child Development and Family Relationships
Civil Engineering
Computer Science
Design and Graphics Technology
Electrical Engineering
Electronics Technology
Family Economics and Home Management
Family Studies
Food Science and Nutrition
Geography
Geographic Planning
Geological Engineering
Geology
Health Science
Home Economics Education
Horticulture
Industrial Arts Teacher Training
Law Enforcement and Justice Administration
Manufacturing Technology
Mathematics
Mechanical Engineering
Microbiology
Nursing
Physical Education
Physical Plant Administration Technology
Physics
Psychology
Range Science
Recreation Education
Sociology
Social Work
Statistics
Technical Teacher Education
Theatre and Cinematic Arts
University Studies
Youth Leadership
Zoology

Bachelor of Arts or Bachelor of Science Degrees

Clothing and Textiles
Elementary Education
Special Education

Bachelor of Arts or Bachelor of Fine Arts Degree

Art and Design

Bachelor of Music Degree

Music

Advanced Degrees. For a list of graduate degrees offered, see the Graduate School section of each department in this catalog.

Graduation Requirements

Bachelor's Degrees

Credit Requirements. A candidate for a bachelor's degree must complete a minimum of 128 semester hours of credit.

Upper-division Requirements. A minimum of 40 semester hours of upper-division credit (classes numbered 300 to 599) is required for a bachelor's degree.

Major Requirements. A student must complete at least 20 semester hours in his major department, 10 of which must be earned on the BYU campus. He must also satisfy any additional departmental requirements.

Residence Requirements. At least 30 semester hours of credit taken in residence at BYU are required for a bachelor's degree. A maximum of 10 semester hours earned at BYU centers for continuing education or at LDS institutes may be applied toward this 30-hour requirement. A student must register and be on campus during 2 semesters—not necessarily consecutive—to satisfy the residence requirement. The residence requirement may be waived for certain programs completed through the Division of Continuing Education if joint approval is given by the dean of the sponsoring college and the dean of the Division of Continuing Education.

Second Bachelor-Degree Requirements. A student will qualify for a second bachelor's degree when the following requirements are satisfied: (1) BYU general education requirements, (2) major requirements, (3) minor requirements (if required by department), (4) residence requirements, (5) religion requirements, and (6) all other graduation requirements set forth in the catalog for bachelor degree candidates. A minimum of 30 semester hours must be completed after the awarding of the first degree, of which at least 10 hours must be completed within the new major.

General Education Requirements. A candidate for a bachelor's degree must satisfy the following general education requirements:

American history and government	3
Biological science	6
English composition	6
Health	2
Humanities	6
Physical education	2
Physical science	6
*Religion	14
Social science	5

A student must also complete one of the two options described below:

1. Mathematics, statistics, logic, science 6
2. Foreign language .... an intermediate or advanced course

*Two hours of religion are required per semester (8½ hours or more) in residence, including Spring and Summer terms, for freshmen, sophomores, and juniors. One hour per semester is required for seniors. No more than 3 hours of religion credit for any one quarter or semester at BYU or elsewhere will be counted towards fulfilling the religion requirement. Students registering for any credit at BYU or through the Division of Continuing Education on a part-time basis must register for one religion course per 16 hours of credit earned.

Relig. 121 and 122 are required of all students. Relig. 421 and 422 are offered to returned missionaries and upper-division transfer students as a substitute for this requirement.

See the section entitled General Education Program for additional information.

Grade-Point Average Requirement. To be cleared for graduation, all degree-seeking students must achieve at least a 2.0 (C) cumulative grade-point average. Transfer students must have a 2.0 (C) grade-point average for both their residence credit at BYU and their cumulative college credits.

Correspondence Credit. A maximum of 36 semester hours of correspondence credit may be applied toward fulfillment of the 128 semester hour requirement for a baccalaureate degree. A maximum of 18 semester hours of correspondence may be applied toward the associate degree.

D Grade Credit. Not more than 18 semester hours of D grade credit may be applied toward completion of the bachelor-degree requirements nor more than 10 semester hours of D grade credit for the associate-degree requirements.

Associate Degrees

Upon completion of an approved two-year curriculum, the Associate of Science degree or the Associate of Arts degree will be awarded at the regular University graduation exercises. A minimum of 64 semester hours of credit is required. A candidate for an associate degree must satisfy the following general education requirements:

	Associate of Science	Associate of Arts
English composition	6	6
American history	3	3
Health	2	2
Physical education	1	1
Humanities	2	3
Biological science	2	3
Physical science	2	3
Social science	2	3

Two hours of religion are required per semester in residence, including Spring Term and Summer Term. Relig. 121 and 122 are required of all students.

Exceptions

1. Two-year engineering-technician students are not required to complete the biological science and social science general education groups.
2. Nursing students are not required to complete the humanities general education group or Health 130.

Of the total of 64 credits, at least 20 must be taken in residence; a total of 18 credits may be taken by correspondence. However, 15 semester hours of work completed on the BYU campus and 5 semester hours taken at BYU centers for continuing education will satisfy the residence requirement for the two-year programs. (The residence requirement may be waived for certain programs completed through the Division of Continuing Education if joint approval is given by the dean of the sponsoring college and the dean of the Division of Continuing Education.) A maximum of 10 D credits will be accepted, but both cumulative and BYU grade-point averages of 2.0 or above are required.

Other Requirements

Deadlines for Transfer, Correspondence, and Incomplete Credit. All incomplete grades must be removed from a student's record and all transfer and correspondence credit must be on file in the Records Office at least four weeks prior to commencement.

Application for Graduation. All students desiring to graduate must officially apply for graduation. Students applying for the bachelor's degree should do so during their junior year. Students applying for the associate degree should do so at the beginning of their sophomore year. Application forms are available at the student's college advisement center. The final deadline for the completed application form and the graduation fee ($12 for a bachelor's degree or $6 for an associate degree) must be submitted to the Cashier's Office, D-155 ASB, not later than January 13 for April commencement. Students desiring to graduate at the end of the Summer Term must apply no later than May 16. Students who apply after the deadline dates will automatically be considered for the next semester's recognition. The Evaluation Office, B-150 ASB, will notify the student in writing of the general-education requirements remaining to be completed for a degree from Brigham Young University. The application fee is a one-time fee. If the student does not graduate on the date indicated on the application, the evaluation will be held for future graduation.

Junior English Proficiency Examination. To be eligible for the bachelor's degree, all students must either pass the Junior English Proficiency Examination or complete Engl. 212, 215, 251, or 316 at BYU **after** September 1, 1971, with a grade of B- or higher. Those electing to take the examination should do so during the first semester of their junior year. The examination is scheduled for the second Saturday of each semester and midsemester. Arrangements for the examination must be made through the college advisement centers.

Attendance at Commencement. All candidates for graduation are encouraged to attend the commencement and convocation exercises. Diplomas will be mailed to students after grades from the final semester are submitted and all graduation requirements are certified as being completed.

Adherence to University Standards. A student's graduation may be delayed or denied if he is found to be in violation of the Brigham Young University Code of Honor.

Change in Graduation Requirements. The University reserves the right to change the requirements for graduation at any time, and candidates will be required to comply with all changes pertaining to the uncompleted portions of their requirements.

The General Education Program

A candidate for the bachelor's degree at Brigham Young University must satisfy all of the general education requirements described below.

Special Notice: General Education Revision

Since 1973 the general education program has been under the scrutiny of various University officials and faculty members. The development of a new program to affect freshman students entering BYU after January 1, 1976, was announced in January 1975. Students to be affected by the new program will receive information concerning requirements and procedures prior to that date.

Area Requirements

American History and Government. The general education requirement in this area may be satisfied by completing one of the following courses or combination of courses: Hist. 170, Hist. 171; Pol. Sci. 101, Hist. 120 and 121, or Hist. 121 and Po. Sci. 110. (A student may take an examination that will, if passed satisfy the American history and government requirement. Arrangements for the examination are made at the BYU Testing Center, B-280 ASB.)

Biological Science. A student must complete a minimum of 6 semester hours selected from the following approved courses:

Agricultural Economics, Agronomy and Horticulture, and An. Sci. 105
Biol. and Ag. Ed. 200
Botany. Any botany course with a number below 469 except 161 and 377
Honors 213R
Microbiology. All courses with numbers below 490 except 391 and 392
Zoology. All courses with numbers below 490 except 381

English Composition. Six semester hours must be completed: Engl. 111 during the freshman year and Engl. 212, 215, 251 or 316 or Phil. 105 during the sophomore or junior year. The student's major department will designate which course the student should complete.

Health. This requirement may be satisfied by completing Health 130 or by a special examination arranged with the Department of Health Sciences. Exceptions: Nursing students may satisfy this requirement by completing Nurs. 106 and 156; elementary education majors may satisfy this requirement by completing Health 361; secondary education majors may satisfy this requirement by completing Health 362.

Humanities and Fine Arts. A student must complete a minimum of 6 semester hours selected from the following approved courses:

ArtDs. All courses in art history and appreciation and—101, 102, 103, 104, 105, 106, 107, 109, 110, 205, 206, 207, 311, and 312.

Classical Civ. 341, 342, 441, and 442
Comms. 100, 101, 102, 201, and 301
English. All undergraduate literature courses except Engl. 251
Foreign Languages. All undergraduate literature courses
Humanities and Comparative Literature. All undergraduate courses below 490
Int. Env. 240, 330, 331, and 430
Music 101, 103, 484, and 485
Philosophy. All courses under 448R except 105, 205, 305, 354, and 355
Theatre and Cinematic Arts 115 and 121

Physical Education. A minimum of 2 semester hours, selected from any of the Physical Education 100-series courses, will satisfy the physical education requirement. One-half credit hour should be taken each semester in the freshman and sophomore years. Students expecting to complete this requirement with credit for military service or through other University-approved programs should check with the Credit Evaluation Office, B-150 ASB.

Students who will complete the requirements for a commission in either the army or the air force on the basis of the outlined four-year program at BYU are not subject to the physical education requirement. Students who withdraw from either of the four-year programs after a minimum of two years are exempt from one credit of physical education. Students qualifying for exemption must provide the Credit Evaluation Office, B-150 ASB, with written verification from the ROTC program.

Students who have completed a minimum of one year's active duty in the military service may receive 2 semester hours of physical education credit. Students qualifying for this credit should bring their DD-214 form to the Credit Evaluation Office, B-150 ASB.

Physical Science. A student must complete a minimum of 6 semester hours selected from the following:

Chemistry. All undergraduate courses
Geology. All undergraduate courses except 312 and 410.
Physics. All courses with numbers below 471 except 391 and 392
Stat. 221

Religion. One religion class is required for each full-time enrollment of 8½ semester hours or more by an undergraduate student at BYU until a total of 14 semester hours in religion has been earned towards a baccalaureate degree or 10 hours towards an associate degree. Part-time students must complete one religion class for every 16 hours of BYU credit completed.

Any religion class in the 100 through 400 series may be taken to meet the religion requirement. In computing the 14 semester-hour total requirement, no more than 3 hours of religion credit at BYU or elsewhere will be counted from any one quarter or semester. The required religion courses will be 2 hours per semester for freshmen, sophomores, and juniors. The required courses for seniors will be only 1 hour per semester.

Book of Mormon. All undergraduates must complete 4 semester hours in the study of the Book of Mormon. This requirement may be completed by taking Relig. 121 or 421 and 122 or 422. Returned missionaries and upper-division transfer students are encouraged to take 421 and 422.

Transfer Credit from LDS Colleges and Institutes. A student may transfer religion credit to BYU to meet the requirement in religion. No more than 3 hours of religion credit from any one quarter or semester will be counted towards the religion requirement. Institute credit will be accepted only if the institute director certifies that the course was taken for institute credit and was in conformance with college standards. A transfer student will be required to complete one religion class per semester at BYU until he graduates or completes the 14-semester-hour requirement.

Students Required to Study Off Campus. If a student is required to study off campus as a part of his degree requirements, he is required to register for religion during that semester through Home Study, a BYU continuing education center, or an LDS institute.

Bible Credit from Non-LDS Colleges and Universities. Bible credit from accredited non-LDS universities and colleges will not satisfy the religion requirement. The transfer credit will, however, apply as elective credit toward the total hours required for graduation.

Credit Completed at Centers for Continuing Education. A student must complete one religion class for every 16 hours of academic credit completed at BYU centers for continuing education.

Requirements for Second Baccalaureate Degree Candidates. Students who register at BYU for a second baccalaureate degree, after having received a first at another university, are required to take one religion class per semester. The Book of Mormon requirement must also be satisfied.

Social Science. A minimum of 5 semester hours must be completed from the following approved courses:

Ag. Econ. 112, 350R, 355, and 390
Anthropology. All undergraduate courses
Archaeology. All undergraduate courses
Asian Studies 101
CDFR 210, 360, and 361
Economics. All undergraduate courses
Geography. All undergraduate courses
History. All courses below 485
International Relations 499
Political Science. All undergraduate courses except 301 and 303
Psychology. All undergraduate courses except 370 and 374
Rec. Ed. 337
Sociology. All undergraduate courses except 205
University Studies 107

Other Requirements

Each student must complete one of the two following options:

1. **Language.** Successful completion of a 201 foreign-language course (intermediate level) or its equivalent. This requirement may also be filled by the successful completion of a 301 foreign-language class, or of any more advanced language, literature, or culture class in a particular foreign language.
2. **Mathematics, Statistics, Logic, and Science.** Six semester hours selected from the following:

    Bot. 201, 370, and 372
    Career Ed. 115
    Chem. 105 and 111
    *Comput. Sci. 130, 131, 132, and 133

    *Only one computer science class may be used in the mathematics-statistics-logic-science area.

    Econ. 388
    Geol. 311
    Mathematics. Any undergraduate mathematics course numbered 105 or higher.
    Micro. 201 and 331
    Phil. 205 and 305
    Physics 105, 110, and 300
    Psych. 374
    Statistics. Any undergraduate course from the Department of Statistics having a prerequisite of Math. 105 or higher.
    Zool. 201 and 321

Transfer Credit Evaluation

All credit from accredited institutions of higher education is accepted by Brigham Young University. A written evaluation of the transfer credit is mailed to the student by the Transfer Credit Evaluation Office soon after the student is accepted for admission to BYU. The evaluation states which classes will satisfy the general education requirements. The student's college advisement center evaluates the courses for the major requirements. Students who earn an associate degree before transferring to BYU will have their general education requirements recognized as complete if they have earned some credit in all of the BYU general education areas and do not lack more than 5 hours of the BYU total-hour requirement in general education.

Scholastic Recognition at Graduation

There are three designations in recognition of high scholarship: graduation "summa cum laude," graduation "magna cum laude," and graduation "cum laude." These awards are made on the basis of excellence shown in work up to, but not including, the semester prior to the commencement date.

Summa cum laude is awarded to those students who have earned at least 45 hours of credit at BYU and have achieved an overall grade-point average of 3.85 or higher.

Magna cum laude is awarded to those students who have earned at least 45 hours of credit at BYU and have obtained an overall grade-point average between 3.7 and 3.84.

Cum laude is awarded to those students who have earned at least 45 hours of credit at BYU and have obtained an overall grade-point average between 3.5 and 3.69.

Scholastic Recognition Each Semester

The dean of each academic college at the close of each semester will post a list of names of students who are ranked in the top 5 percent of their colleges for the given semester, who have earned a minimum of 15 credit hours, and who have earned a minimum grade-point average of 3.5 or higher in all classes.

Exception to University Policy

A student who wishes an exception to a University policy may petition in writing the request to the Exception to University Policy Committee. Petition forms are available in B-150 ASB.

Fees and Financial Assistance

University Fees

The University reserves the right to change these figures without notice.

All students who register will be expected to pay tuition and fees prior to or at the time of registration. **Students are held responsible to pay the correct amount of tuition and fees.**

A fraction of an hour is counted as a full hour for assessing fees.

The tuition and fees paid as a part-time student do not entitle one to health service, student activity privileges, or physical education suit and facility privileges.

The charge for noncredit courses or for auditing courses is the same as for credit courses. Noncredit courses taken by part-time students will be assessed on the basis of hours involved in lecture classes. For example, three hours of lecture a week would be considered three semester hours and would be charged for accordingly. Therefore, if a student were taking 7 credit hours plus a non-credit class involving two or more lecture hours per week, he would be considered a full-time student and must register as a full-time student. For courses in which no lecture hours are involved—for example, dissertations and theses—tuition and fees will be charged based on hours being carried during the semester as determined by the supervising professor.

With the exception of students enrolled in the Law School and in MBA, MPA, and M.Acc. programs all students at the University who have completed 128 semester hours or more of credit prior to the [illegible] semester for which they are registering will be designated as advanced-standing students. Among those who have advanced standing are students completing their first or second bachelor's degree, those taking classes while fulfilling a change in academic major, graduate nondegree students, and graduate degree seeking students.

Students in this category should be aware of the nonrefundable overload fee for registrations of over 16 hours per semester or over 8 hours per term. Because a subsequent reduction of course load will not relieve the overload assessment, advanced-standing students should register for exactly the classes they need.

The undergraduate tuition rate applies only to those undergraduate students who have completed less than 128 credit hours prior to the beginning of the semester or term for which they are registering.

Full-time classification for both undergraduate and graduate students is registration for over 8 credit hours per semester or for over 4 credit hours per term.

Tuition and General Fees (Effective Fall Semester 1975)*

	Per Semester (Fall or Winter)		Per Term (Spring or Summer)	
	LDS Member	Non-Member	LDS Member	Non-Member
Undergraduate Students				
Full-time	$340	$510	$170	$255
Part-time	$ 35 per hour	$ 53 per hour	$ 35 per hour	$ 53 per hour
Advanced-Standing Students				
Full-time	$360**	$540**	$180**	$270**
Part-time	$ 38 per hour	$ 57 per hour	$ 38 per hour	$ 57 per hour
**Nonrefundable Overload Fee	$ 15 per hour over 16 hrs.	$ 15 per hour over 16 hrs.	$ 15 per hour over 8 hrs.	$ 15 per hour over 8 hrs.
MBA, MPA, and M.Acc. Students				
Full-time	$420	$630	$210	$315
Part-time	$ 45 per hour	$ 67 per hour	$ 45 per hour	$ 67 per hour
Law School Students				
Full-time	$550	$825		

*Approximately 70 percent of the cost of operating the University is paid from the tithes of the LDS Church. Therefore, students and families of students who are tithe-paying members of the Church have already made a significant contribution to the operation of the University. Because nonmembers will not have [illegible] contribution, they are charged a higher tuition than are members, a practice similar in principle to that of state universities charging higher tuition to nonresidents.

Late Registration Fee

Late registration fees will be assessed all full-time and part-time students for failure to complete registration on scheduled dates. No exception is made, regardless of reason for being late.

Semester Registration: $20.00

Term Registration:
See **Class Schedule** for Spring and Summer terms.

Any student whose check is dishonored by the bank will be charged a handling fee of $5. If the check is for tuition, there will be an additional charge of the late fee in effect at the time the check is redeemed.

Tuition Refunds—Semester Registration

In the event of withdrawal by a student, a refund will be made on the basis of a charge of $10 ($5 for a part-time student) even though the student does not complete registration or attend school, plus a per-day charge of 3 percent of the total tuition and fees paid or payable for the semester. The days charged for will be the school days beginning with the first day of the semester in which classes were held following the date on which the student registered, to the day on which the student reported his withdrawal to the Office of the Dean of Student Life.

Late fees are not refundable.

Any refund due a student because of withdrawal from school will be made only by check, through the mail, approximately three weeks from the date on which the student reported his withdrawal and surrendered his receipt or activity card to the Office of the Dean of Student Life.

No refund will be granted to a student who is asked to withdraw for scholarship or other reasons.

No refund will be made after August 31 of the school year in which payment was received by the University.

Class Fees

Archaeol. 455R	$170.00
FEHM 370	
Resident students*	85.00
Married nonresident students	8.00
*All resident students must pay a $25 nonrefundable deposit prior to registration, the balance to be paid at the time of registration.	
Geol. 410	130.00
Music 159R (30-minute lessons)	75.00
Music 160R, 359R, 360R, 660R (45-minute lessons)	95.00
P.E. 128	10.00
P.E. 195, 196 (nonrefundable)	15.00
ROTC leadership laboratories (Air Force and Army)	8.00
Student Teaching Fees	
Ed. 400	$45.00
Ed. 476	45.00
Ed. 479	45.00
Ed. 468R, 578R, 673R (2 credit hours)	15.00
Ed. 468R, 578R, 673R (4 credit hours)	25.00
All departments 479	45.00

This fee is to be paid at the time of application for student teaching. An additional $10 late fee is assessed if application is completed after March 31 for Fall Semester and October 15 for Winter Semester. The $10 late fee is not refundable under any circumstances.

Refunds—Fees for Instruction in Music

Students who withdraw from registration for private instruction before the semester begins or during the first week of the semester will receive a refund of the total amount paid.

Students who withdraw after they have begun their private instruction will be charged 10 percent of the total fee, the full cost of each lesson taken or each lesson missed without notifying the teacher, and one-half the cost of the remaining lessons in the course.

Applications for refunds are made at C-550 HFAC.

Miscellaneous General Fees and Fines

Admissions evaluation fee (nonrefundable)	$15.00
Automobile and motorcycle registration* and parking fee	
Zone B	
Fall and Winter semesters	12.00
Winter Semester only	6.00
Spring and Summer terms	6.00
Summer Term only	3.00
Zone C or D	
Fall and Winter semesters	6.00
Winter Semester only	3.00
Spring and Summer terms	3.00
Summer Term only	1.50
*Registration is mandatory but no fee is charged if the student elects NOT to park on campus	
Bicycle registration (Provo City licence)	3.00
Change of registration fee (for each change slip presented after the first two weeks of each semester)	5.00
Change of grade fee (unless the change is the responsibility of the University)	3.00
Chemistry deposit (each lab)	10.00
Duplicate activity card	4.00
Exemption examination (to exempt a student from taking a required class)	10.00
Examination, special equivalency (undergraduate)	
Nonrefundable fee to take exam	10.00
Per credit-hour charge upon successful completion of exam (The maximum fee in any one subject shall not exceed $40 in addition to the examination fee. Each examination will be treated independent of any other examination and the charge will apply accordingly.)	5.00
Graduation fee, bachelor's degree (only 50 percent refundable if degree is not obtained)	12.00
Graduation fee, master's or doctor's degree (only 50 percent refundable if degree is not obtained)	20.00
Graduate student service fee (for graduate students using University facilities without formal registration for University classes) per semester	2 credit-hour rate
General College two-year terminal certificate	6.00
Holds placed on credits for unpaid bill	2.00
Identification photo	2.00
Physical Education locker	1.00
Records search fee	1.00
Recital fee (solo or joint recital)	35.00
Spouse activity card (nonrefundable) per semester	5.00
Thesis binding (4 copies)	11.00 to 15.00
Traffic violation fines	variable, according to violation
Transcript fee ($1.00 for first copy on each order, plus $.50 for each additional copy)	1.00

Estimated College Expenses

Educational expenses have been deliberately kept at a minimum at Brigham Young University. At a time when yearly costs at public colleges are typically well above $2,500 and private college expenses are above $3,500, BYU continues to offer a unique, high-quality educational experience for much less. This is possible because of Church financial support, which covers more than 70 percent of the University's total expenses.

An undergraduate student at BYU may expect the following basic costs:

	Fall Semester	Winter Semester	Spring Term	Summer Term
*Tuition and fees	$340	$340	$170	$170
Board and room	470	470	220	220
Books and supplies	90	90	45	45
	$900	$900	$435	$435

Personal expenses must be added to these totals.

*Tuition and fees for non-LDS students are $510 for each of the Fall and Winter semesters and $255 for each of the Spring and Summer terms.

A student entering the University should have made arrangements to cover enrollment expenses and should have funds on hand sufficient for at least the first semester. University financial aid is available to supplement student and family savings through one or more of the following programs: scholarships and awards, student loans, and student employment. Eligibility for each is described below.

Scholarships and Awards

Undergraduate Scholarships are incentives and rewards for scholastic excellence. Ordinarily, successful scholarship applicants will have grade averages above 3.6 (4.0 = A) and, in the case of high school seniors, composite American College Test scores above 26.

Academic scholarships include financial awards to cover half or full tuition, and recipients are selected on the basis of academic achievement. Additional financial grants are added to scholarship awards when recipients have demonstrated serious financial need. Consideration of financial circumstances is given if the student submits the ACT Family Financial Statement as explained in the scholarship application.

Students who wish to be considered for scholarships must submit all application materials outlined in the scholarship application by the following deadlines:

Fall Semester	
New Freshmen	February 15
Transfer and Former BYU Students	April 1
Continuing BYU Students	January 31
Winter Semester (all applicants)	November 1
Spring Term (all applicants)	March 1
Summer Term (all applicants)	May 15

All scholarship applicants will receive written notification of their standing within six weeks following the scholarship deadline.

Talent Awards are available to talented leaders, musicians, artists, dancers, debaters, and actors. These awards, available only to new freshmen and transfer students, are given primarily on the basis of the student's demonstrated talent, rather than on scholastic achievement alone. Their values range from partial to full tuition and fees for one year. The application deadline for all talent awards is February 15.

Grants-in-Aid are available to deserving students who have commendable college records and show acute financial need. These grants are typically restricted to upperclassmen nearing graduation and generally cover a portion of tuition expenses. A student may apply for a grant-in-aid by arranging for a personal interview at the Student Financial Aids Office and by submitting a formal application for financial assistance.

Athletic Grants-in-Aid are awarded to outstanding athletes to support their study while representing the University in collegiate athletic competition. BYU head coaches recommend deserving players to the University Financial Aids Committee, which in turn, in compliance with National Collegiate Athletic Association regulations makes the awards.

ROTC Financial Aid/Scholarships. Both Army ROTC and Air Force ROTC offer scholarships on a competitive basis to qualified students enrolling or enrolled in their programs. ROTC scholarship students receive all tuition, fees, books and associated costs, and a $100 monthly subsistence allowance. Both scholarship and nonscholarship students enrolled in the courses numbered in the 300 and 400 series receive the $100 monthly subsistence allowance. Interested students should consult the Professor of Military Science for Army ROTC information or the Professor of Aerospace Studies for Air Force information, located in the Wells ROTC Building.

Danforth Graduate Fellowships. These fellowships are available to outstanding graduating seniors who plan college teaching careers and plan to study for the doctorate or other appropriate terminal degrees. Applicants, male or female, single or married, must be less than thirty-five years of age and must demonstrate outstanding academic ability. Fellowships are open to persons of any citizenship for study in U.S. graduate schools.

Danforth Fellowships may be held concurrently with any other national fellowship; however, the Danforth Fellowship will be without stipend until the other fellowship lapses.

The present maximum annual stipend is $2,025 plus tuition and fees for single students. Married students receive $2,200 plus tuition and fees and dependency allowances for children.

The BYU liaison officer may nominate four students to the Danforth Foundation. All interested students should contact the liaison officer, Dr. C. Terry Warner (106 HGB), before October 1. All applicants must take the Graduate Records Examination on or before the October test date.

Scholarships for American Indians. Assistance in obtaining American Indian scholarships and awards may be obtained by contacting the BYU Indian Education Center.

Student Loans

Church Long-term Loans are available to worthy Church members who are full-time students in good academic standing and whose combined personal and family resources (including any scholarships, awards, grants, and campus employment) are inadequate for the continuation of full-time study. These loans are not available to first-semester freshmen or to students with outstanding student loans from other sources. Long-term loans are negotiated with a note that requires a cosigner for all applicants.

Full-time students may borrow up to the current cost of tuition each semester.

The maximum cumulative amount to any one student is $3,500.

Short-term Loans are available for emergency assistance to students whose income is assured but delayed. These loans bear no interest but must be repaid within the current semester. Short-term loans can cover tuition, books, fees, or other school expenses up to the semester cost of tuition for students who are in good academic standing. Cosigners are also required for these loans.

Federally Insured Student Loans can be negotiated with any participating lending institution. A needy BYU student may apply for this type of loan at his local bank, credit union, or savings and loan institution.

Interest is normally paid by the government while the student is in school if his family income is low enough to qualify. Repayment of the principal and interest by the student begins after he has completed his course of study.

For current information on the stipulations and amounts available under this Federally Insured Student Loan Program, the student should contact his local bank or lending institution.

Student Employment

The Employment Office assists students in finding part-time employment, both on and off campus.

The amount of money earned through part-time work usually is not sufficient for complete self-support; therefore, the University recommends that a student not attempt to support himself entirely through part-time employment while in school. Such a program leaves little time for academic work and those extracurricular activities necessary for a well-rounded education. Futhermore, no student is permitted to work more than twenty hours per week on campus. It is therefore suggested that a student arrange for some outside support to supplement his part-time earnings.

Students needing employment are urged to register with the Employment Office as soon as possible after they arrive in Provo and are available for work. Hours available and the possession of skills required by employers are very important. Inasmuch as the number of students seeking part-time work is very high, those whose needs are great are requested to report at the Employment Office periodically after filing their initial applications.

Many students will not succeed in finding employment immediately; some will be delayed three or four weeks, while some could go an entire semester without finding suitable work.

Students from foreign countries are required to obtain work permits before accepting employment. Such students may receive assistance from the foreign-student adviser in obtaining the necessary permit.

Special Academic Programs

Honors Program

The Honors Program, which is part of the College of General Studies, provides an alternate program of general education for undergraduates of exceptional promise. It is open to qualified students in every college of the University; students participate in Honors while completing the degree requirements of their respective departments. Detailed information is found in the List of Courses section.

Institute of Government Service

The Institute of Government Service offers graduate studies leading to the Master of Public Administration degree. The aim of the program is to provide preparation for leadership careers in the public service. The program is also designed to meet the needs of those seeking positions with public and private government research organizations and semiprivate organizations whose purposes are public. Students from a wide range of undergraduate backgrounds are admitted. The program is administered by the director of the Institute of Government Service.

For information concerning course work and other requirements, refer to the **Graduate School Catalog.**

Forums and Lyceums

Throughout the history of Brigham Young University, students have had the privilege of receiving special visits from General Authorities of the Church, including members of the First Presidency and the Council of the Twelve Apostles, who prepare messages especially for them. The University has also brought to the platform distinguished resident faculty members and prominent visiting speakers and artists who provide insight into contemporary civilization and provide evening programs of great cultural value. Forum assemblies are held usually in the Marriott Center, at 10:00 a.m. each Tuesday on alternate weeks.

The most celebrated performing artists in the world present lyceum programs at Brigham Young University. These concerts highlight the cultural activity of the campus. Lyceums are presented in the de Jong Concert Hall or the Marriott Center as evening concerts. During the 1974-75 school year, the following were scheduled for the Forum and Lyceum series:

Forums

Daniel J. Boorstin	Senior Historian, Smithsonian Institution
Nelson A. Rockefeller	Governor of New York State and Vice-President Designate of the United States
Morris K. Udall	United States Congressman from Arizona
Jae R. Ballif	Professor of Physics and Dean of the College of Physical and Mathematical Sciences, BYU
Richard L. Gunn	Professor of Art and Education, BYU
Sydney J. Harris	Syndicated Columnist and Philosopher
N. Scott Momaday	Poet, Author, Professor of English and Comparative Literature Stanford University
Pyong-Choon Rahm	South Korean Ambassador to the United States
David P. Gardner	President of the University of Utah
David Halberstam	Author of **The Best and The Brightest,** Contributing Editor of **Harper's Magazine**
F. Lamond Tullis	Associate Professor of Political Science, BYU
Philip M. Flammer	Associate Professor of History, BYU

Lyceums

Mary Costa	Lyric Coloratura Soprano
Carol Rosenberger	Piano
Noel Rogers	Soprano
Quartetto Esterhazy	String Quartet
Utah Symphony Orchestra	Maurice Abravanel, Director
Polynesia Dance	
Los Angeles Philharmonic	Zubin Mehta, Director
Murray Perahia	Piano
Ballet West	**Nutcracker Suite**
Moscow Chamber Orchestra	
Vienna Boys Choir	
Jerome Hines	Bass
Heinz Wunderlich	Organ
Claude Franke	Piano
Han De Vries	Oboe
Ani Kavafian	Violin
Peter Rejto	Cello
Emanuel Ax	Piano
C. C. Ryder	Folk-singer, Guitarist
New York City Center Acting Company	

Preprofessional Programs

The preprofessional committees offer counseling for students who wish to enter one of the following professions: dental hygiene, dentistry, law, medicine, optometry, osteopathy, pharmacy, podiatry, and veterinary medicine.

For preprofessional programs not listed here, see the College of Biological and Agricultural Sciences in the Colleges section. The preprofessional-Health Advisement Center is in 391 WIDB.

Preprofessional students may major in any department, since there are no separate majors for these professional areas. However, students preparing for medicine or other health professions are advised to major in biological science. The student's adviser will give assistance in planning a program that will fulfill the graduation requirements of his department. In addition, students may receive counseling regarding professional schools from one of the appropriate committees below.

Predental Hygiene

Adviser: Elda Banner, 386 WIDB

The course of instruction at dental hygiene school is two years in length. Some programs, admitting students directly from high school or with limited college, lead to a certificate or associate degree. Others require two years of college prerequisites and award the bachelor's degree. College prerequisites vary with the dental hygiene schools but generally include zoology, math, chemistry, English, psychology, and speech. The dental hygiene school or schools to which a student will apply should be chosen early so that proper prerequisites can be completed. Admission is highly competitive, grade-point averages being most important. The Dental Hygiene Aptitude Test is required. Application for admission should be made one year prior to the intended date of entrance.

Prelaw

Chairman: Bruce C. Hafen, D-341 ASB

A student's grade-point average and his score on the Law School Admission Test are the primary factors on which law schools base their admission decisions. Law schools generally do not require a particular major field or any particular prescribed courses as prerequisites for admission. Most schools require merely a bachelor's degree; that is to say, the presence or absence of particular courses seldom affects admissions decisions.

Therefore, a student should select a major field which interests him and which will provide him with a basis for an alternative vocational choice should his plans to finish law school not be realized. Even though no particular prelaw major is best for all students, there must nevertheless be substantial academic content in the prelaw training. In addition, the student should supplement his major field by taking intellectually demanding courses that will develop broad educational foundations and the mental skills required of the successful law student or lawyer—the ability to analyze, to reason, to read carefully, to think abstractly, and to speak and write precisely.

Students should contact members of the University's Prelaw Committee for more detailed counseling on the manner in which their particular needs and interests may best be shaped into a suitable prelaw program.

Students interested in admission to the J. Reuben Clark Law School should contact the Law School directly and request a copy of the **J. Reuben Clark Law School Bulletin.** A bachelor's degree is required for admission to the Law School.

Premedicine and Predentistry

391 WIDB

Entrance into medical or dental schools is based upon successful completion of four years of college work with excellent grades. Competition is rigorous, and only the very best students gain admission. Students are therefore urged to select an alternate career and major in that discipline while they are fulfilling the medical or dental school requirements.

Brigham Young University does not offer a major in premedicine or predentistry, and students are encouraged to major in zoology or one of the sciences. They should contact the office at 391 WIDB as freshmen and periodically thereafter in order to obtain counsel on the specific requirements of the various professional schools and the appropriate courses to be taken at BYU. Literature and information concerning health fields are available at this office.

Preoptometry

Adviser: Elda Banner, 386 WIDB

Preparation for the optometry profession includes at least two years of undergraduate coursework and four years of study in a school of optometry. Prerequisites for optometry school admission vary somewhat with individual schools, but generally they include a year each of chemistry, zoology, math, physics, English, and psychology. Grade-point average is the primary consideration in optometry school admission. Optometry College Admission Test scores are another important factor. Application should be made one year prior to expected entrance. Interested students should consult early with the preoptometry adviser.

Prepharmacy

Adviser: Elda Banner, 386 WIDB

The one- to two-year prepharmacy curriculum may be completed at Brigham Young University. Although prerequisites vary with individual pharmacy schools, required courses typically include one year each of English, math, physics, and zoology and two years of chemistry. Study at a pharmacy school is usually three years in length, though some new programs such as clinical pharmacy and the combination of a Master of Business Administration with the pharmacy degree require four years of study.

Division of Continuing Education

The purpose of the Division of Continuing Education has been to provide educational programs and University services for the part-time and off-campus students. These educational opportunities have also assisted the regular daytime students. Services range from off-campus programs, lectures, correspondence study, special degrees for adults, and various community services to formal campus classroom offerings. These programs and services, credit and noncredit offerings, are for an international clientele. Brigham Young University ,cooperates with the continuing education programs as sponsored by the Church Educational System and its various components.

In addition to special, part-time faculty members, many teachers of the courses scheduled through the Division of Continuing Education are selected from the regular BYU faculty.

The same University standards required of regular daytime students apply to those enrolled through the Division of Continuing Education.

Organization. Because the continuing-education program as it is presently organized represents both Brigham Young University and the Church Educational System, the departmental and center descriptions will be distinguished in the material that follows.

Requirements for Enrollment in Continuing Education Classes. Anyone having the desire and the necessary ability may enroll for noncredit classes. Credit classes are open to—

1. matriculated daytime students,
2. nonmatriculated students who hold bachelor's degrees (Degree-seeking graduate students should be admitted by the Graduate School.),
3. anyone nineteen years of age or a high school graduate;
4. junior or senior high school students by special permission in selected workshops, seminars, etc.;
5. those who wish to audit classes.

Students who have been suspended from Brigham Young University or any other institution of higher learning for any reason are not eligible to register in continuing education classes until such suspension is cleared.

Student Responsibility. Acceptance in a continuing education course **does not** constitute acceptance by Brigham Young University or any other university on a degree-seeking basis. It is the responsibility of each student to gain admission to the university of his choice as a degree-seeking student through the normal procedures listed in the university catalog. At BYU, this may be accomplished through the Office of Admissions and Records.

The Division of Continuing Education at BYU takes no responsibility for the acceptance of a student's credit toward a degree or for accreditation purposes of any nature at any university. Clearing courses for accreditation of any kind prior to enrollment is the responsibility of the student.

Evening Classes

The Department of Evening Classes has as its major responsibility providing college-level educational opportunities for adults. In addition, the department is a service for daytime students who experience scheduling difficulties and/or prefer the evening sections which usually meet only once a week.

A schedule of courses is published each semester and is available upon request at the Evening Classes office, 225 HRCB. Evening classes are also listed in the daytime class schedule as sections 90 through 99.

When fewer than eighteen students register for any one evening class, that class may be cancelled. An attempt will be made to notify students of cancellations and to invite them to join other classes. Full refunds are made for cancelled classes unless the student registers for other classes.

Regular Daytime Students may enroll in evening classes by filling out their preregistration form with evening classes (section 90 through 99) information obtained from the **Class Schedule.**

Withdrawal from evening classes is accomplished by following regular, day-class procedures, including the obtaining of teacher signatures. The cashier will forward the refund approximately three weeks later. Students will not be charged a late drop fee if a class has been cancelled.

Community Students may register early by mail or during the announced registration dates. Tuition and fees and the courses available are listed in the class schedule. At scheduled times prior to and during registration, counselors and advisers are available to aid the student in planning his course work.

To drop a class, the community student must complete an evening class withdrawal form, available in 225 HRCB. The teacher's signature is not necessary. If class enrollment has exceeded the specified or restrictive limit, the student must obtain the teacher's approval and signature in order to add that class. A change fee of $5 is charged for each change presented after the add-drop period unless the change is the result of a cancelled class. Since refunds are prorated according to the number of class meetings the student **could have** attended, it is highly advisable for him to complete withdrawal promptly. No refunds will be made for withdrawals after the first half of the semester.

Veterans are eligible to enroll under the G.I. Bill if they meet the eligibility requirements of the Veterans' Administration.

Home Study

Through its Home Study program, the Division of Continuing Education offers more than 300 college-level credit courses, providing practical and convenient solutions for students with scheduling problems and for working students, armed forces personnel, and others who cannot take all their classes in residence. Home Study is education through a modified correspondence medium—the University's "portable program," which can bring BYU to the student anytime, anywhere.

A student may register for a Home Study course at any time during the year by mail or by registering at the Home Study Office, 210 HRCB. Home Study catalogs, which list all courses offered and include complete policies, procedures, and enrollment forms, are available without charge.

The student completes course lessons and takes or mails them to the Home Study office, and from there they are sent to a BYU faculty member, who checks, grades, and returns them with comments and suggestions. Final examinations are required in all Home Study courses, unless otherwise stipulated in the catalog. The student is given one year to complete his course, although most do so in much less time. Extensions are available.

Veterans. Brigham Young University has been approved to offer Home Study courses to veterans. For further information, contact your educational officer or the Veterans' Office at BYU.

The Institute of American Indian Services and Research

The Institute is an off-campus program for Indians that provides innovative assistance to Indian people throughout North and Central America. Established in 1958 under the sponsorship of Spencer W. Kimball and the authority of the University and the Board of Trustees, the Institute began to assemble information on every phase of Indian culture. In 1966, the organization was expanded to include research and services to Indians in the areas of agriculture, economic projects, alcoholism, and other areas of need across a whole range of pressing social and economic problems.

Projects under the direction of the Institute include the following:

Alcoholic Resource Center. The Institute is in the process of developing an alcoholic resource center to assist with the pressing problem on all reservations. Ten filmstrips combating alcoholism have just been completed, and a series of antialcoholic posters and educational materials geared to Indians are being developed for use on the reservations.

Agricultural Projects. The Institute has stimulated and developed sixty agricultural projects with forty Indian tribes. These projects are designed to assist the people in reclaiming their lands.

Training Programs. Presently, the Institute is under contract with the Utah Department of Employment Security to train 210 Indians in pretechnical home management, vocational building and business, prevocational building, and farm development and training.

The University provides such things as the administrative structure, technical assistance, financial accounting and control, and purchasing. The staff in the field provides the actual training and education.

Cooperatives. The Institute has organized several co-ops on Indian reservations to help them take advantage of wholesale purchasing and marketing.

Small Business Projects. The Institute is assisting several Indian groups, especially among the Zunis and Hopis, to develop their semiprecious stone and silversmith business and to find better outlets for their finished products.

Arts and Crafts Projects. The Institute is helping groups in several areas to develop arts-and-crafts industries.

Farm-Equipment Leases. The Institute is assisting Indian farmers in North and South Dakota, Montana, Wyoming, and Nebraska in a lease program with Ford Tractor Co., to make equipment available at a very nominal cost to the individual farmer.

Puebla Project. The Institute is developing an agricultural and home-management program for Puebla, Mexico, as a prototype for future programs in Latin America. A director is now on the site organizing a summer program for a group of BYU students who will help in service projects. Technical assistance is also being provided in agricultural production, home management, sanitation, and child-care.

Vocational Training. The Institute is organized to help young Indians take advantage of vocational and technical training available to them.

Mobile Homes. Large vans are equipped to work on the Navajo and Pueblo reservations to teach the Indian women in such arts as sewing, cooking, cleaning, sanitation, child care, food preparation and storage, and financial management. Several Indian girls trained at BYU now help in the training program.

Individualized Self-Instructional Packages. Self-instructional packages are now being financed and developed at BYU under the direction of the Institute. These materials can readily be used by the Indians in both North and South America in learning simple home and vocational skills.

Research. Considerable research is being sponsored by the program to assist Indian-Institute publication (Indian Affairs).

Special Courses and Conferences

The Department of Special Courses and Conferences, organized to fulfill the academic needs of people from many different age groups and diverse educational backgrounds, provides flexible and varied programs, both credit and noncredit, on the BYU campus and throughout Utah County. Programs in the following categories are offered:

1. **Conferences** are conducted for professional and youth groups in intensive sessions, usually over a period of from one day to one week. Conference groups often hold business meetings in addition to the sessions in which academic materials are discussed.
2. **Workshops and Clinics** are programs that involve a high degree of participation and activity by registrants and include instruction in professional and avocational skills.
3. **Special Courses** are credit or noncredit courses not administered as day or evening classes.
4. **Lectures**—short discourses on various academic subjects—are offered both singly and in series.
5. **Seminars** are courses for groups of supervised students or professional people doing research or advanced study.

It is University policy that all programs in the above categories and for which tuition is charged must be sponsored by the Department of Special Courses and Conferences.

All courses offered, though informative and presented on a high academic level, remain informal and flexible as to content and presentation. The instructional staff is composed of members of the BYU faculty and other professional and academic specialists. Tuition and fees vary according to the length of the course and any special expenses involved.

Persons representing groups that desire special courses or lectures on the BYU campus should contact the Department of Special Courses and Conferences, 242 HRCB.

Travel Study

Different areas of the United States and of the nations of the world are more closely interrelated today than ever before through the marvels of high-speed transportation and long-range communication, making travel abroad a more important and more exciting educational experience than ever before. Through Travel Study, Brigham Young University truly makes the world its campus.

Project Mexico (Spring Term, 6-8 semester hours credit). Service to Lamanites and the Mexican people is combined with a study and language program for majors in a variety of fields in this truly unique educational experience. Spanish 101 or equivalent is a prerequisite.

Washington Seminar (Spring Term, 8 semester hours' credit). Upper-level or graduate students from virtually every major may serve internships in congressional and administrative offices, the Supreme Court, law offices, etc. Participants hold seminars with top government officials, receive on-the-job training, and gain valuable insight into our political system while receiving stipends.

Travel Study Tours

World of the Bible departures: Dec., Apr., May, and June
Book of Mormon departures: Dec., Apr., and Sept.
Church History (July)
Adult European (June-July)
Student European (June-July)
South Seas Odyssey (Feb.)
Student Israel (June-July)
Student Interior Design (June)
Temples and the Holy Land (July)

For further information and an up-to-date list of programs, contact the Department of Travel Study, 202 HRCB, Ext. 3946.

Study Abroad

BYU Study Abroad programs offer the student full credit for study in different lands, where new sights, new sounds, and untapped sources of learning and understanding unfold.

Study Abroad is designed for students who wish to increase their knowledge and understanding of their own nation and of other lands and people through purposeful educational travel under the direction of the University. Participants must adhere to standards of The Church of Jesus Christ of Latter-day Saints.

Austria. Students with minimal German language backgrounds enjoy a delightful experience amidst the Alpine setting, city gardens, domes, and bells of this musical and cultural center.

France. The BYU Study Abroad Program in historically significant Paris features academic offerings in humanities, fine arts, and social sciences. Minimum language requirement: French 102.

Spain. The students' personal association with the people and the country has made this program successful. The program includes classes in language, art, religion, and general requirements (usually humanities and social sciences).

London. Study Abroad's newest addition offers students a feast of learning experiences. There is no more exciting place to study English literature and drama than at Stratford-on-Avon, to study political science than at the House of Lords and the House of Commons, and to study history, art, and interior design than at Windsor, Blenheim, and Warwick castles. (Contact Study Abroad regarding the above programs.)

Israel (Fall Semester and Winter Semester). Students have an opportunity to live and study in Jerusalem, stay several weeks in Galilee, and also spend a week on the Negev and Sinai. Other historical sites visited include Bethlehem, Hebron, Beersheba, Gaza, Qumran, Jezreel, Samaria, Shechem, Masada, and others. In addition, participants will visit Paris, London, and the Middle East countries of Egypt and Jordan. Courses offered: Pol. Sci. 498R; Hebrew, 101, 102, 201, 301; Archaeol. 101; Hist. 300; Relig. 211, 212, 301, 302, and 490R. (Contact Travel Study regarding this program.)

Off-Campus Lectures and Courses

The Department of Off-Campus Lectures and Courses provides educational services for geographical areas not served by BYU Centers for Continuing Education, thereby sharing the spirit of Brigham Young University with distant locations that would not otherwise have the opportunity of participating in BYU programs. Four primary programs are offered: Education Days, Know Your Religion, the Summer Lecture Tour, and credit classes.

Education Days, patterned after the Education Week programs, offer a wide variety of subjects. They are scheduled on any Saturday convenient to the particular location, with usually two or three faculty members assigned.

The Summer Lecture Tour and the Know Your Religion Series provide opportunities for people in distant locations to hear outstanding faculty deliver stimulating addresses.

Credit Courses may be offered at any location where there are enough students interested to carry a class. These classes provide regular BYU credit, which may be applied toward a degree or used to renew teaching certificates. Classes may also be used for in-service training or simply for broadening one's intellectual or spiritual horizons.

Education Weeks

Education Week, formerly called Leadership Week, has been held annually on the BYU campus since 1922 and has gained nationwide attention. For the past several years, the program has been gradually expanding throughout North and Central America. In 1974 the program was presented in sixty-four locations, extending from Edmonton, Alberta, Canada, in the north to Houston, Texas, in the south and from Washington, D.C., in the east westward to the Pacific Coast. As a result of extreme interest and demand over the last few years, the program will expand to over eighty locations in 1975.

Off-campus Education Weeks are usually three-day programs involving from six to ten faculty members, each presenting three hours of lecture on each of the three days. At times, local teachers are used in their areas of specialization as well.

Campus Education Week. For many years, adults from all walks of life have spent their vacations or other spare time attending the four-day festival of learning at Brigham Young University. Many of the colleges of the University, through their faculties and off-campus consultants, provide selected educational experiences that help members of the Church and other patrons of the University to become better leaders professionally and in the home, the community, and the Church.

The on-campus Education Week provides classroom instruction for everyone. Instruction is offered in the areas of human relations, scientific advancements, the world of business, teaching methods, literature, drama, music, speech, teenage problems, handicrafts and arts, genealogy, scriptures, and others. Devotional assemblies, evening entertainment, tours, lectures, demonstrations, and workshops also enhance the offerings of Education Week. In 1974 there were over 8,000 people from forty states who attended.

Centers for Continuing Education

Sensing the obligation of the Church University to provide educational opportunities in harmony with LDS standards for persons living away from Provo, the Board of Trustees has established continuing education centers. A center offers the seme continuing education services to the people living in that center's area—including Education Week—as those offered to people who live near Brigham Young University. Students who expect to earn a degree from BYU may do a great deal of their work at a continuing education center, but at least 20 semester hours of credit must be earned on the BYU campus for a baccalaureate degree (15 semester hours for an associate degree). See the Graduation Requirements section of this catalog for residence requirements. Continuing education centers represent both Brigham Young University and the Church Educational System in their program offerings.

BYU-California Center for Continuing Education, 12550 Brockhurst, Suite D, Garden Grove, California 92640, (714) 636-1890. Eighty-eight stakes of the Church throughout California participate in the California center's activities, which involve over 75,000 people annually. The educational activities are usually held in LDS stake centers, and events are generally cosponsored by LDS wards and stakes.

Educational subjects range through religion, family life, behavioral sciences, humanities, arts, genealogy, teaching, and administration. Faculty members are local educators, BYU instructors, and other approved teachers.

In addition to its educational programs, the California center offers general information and counseling services for BYU patrons.

BYU-Ogden Center for Continuing Education, 555 24th Street, Ogden, Utah, (801) 399-4455. The Ogden center offers upper-division and graduate courses in many of the University's academic departments in addition to informal courses, lectures, seminars, workshops, and special programs organized for business, industry, and special groups. Several Education Day and Education Week programs are also offered each year.

In 1964, the University's Department of Graduate Education authorized the center to offer a program of classes leading to the master's degree, with a major in six different areas.

Faculty members come from BYU and from the Ogden area. Local instructors are approved by the University academic colleges and departments.

BYU-Ricks Center for Continuing Education, Ricks College, Rexburg, Idaho, (208) 356-2516, and 2630 N. Yellowstone Highway, Idaho Falls, Idaho, (208) 523-4682. This center provides off-campus, credit evening classes in Rexburg and Idaho Falls each semester, summer evening classes in Idaho Falls, and summer day classes in cooperation with Ricks College. In addition, Education Weeks and numerous noncredit programs and workshops are offered.

In 1959 a film center for BYU-produced films was established in Idaho Falls by the Division of Communication Services. Numerous programs are sponsored throughout the state of Idaho and in limited areas of Montana, Wyoming, and Oregon.

BYU-Salt Lake Center for Continuing Education, 401 12th Avenue, Salt Lake City, Utah, (801) 328-0325. The Salt Lake Center—the largest of the four centers for Continuing Education—offers courses through all colleges and departments of the University, making it possible for students and other interested persons to take much of their required course work in Salt Lake City. All general education requirements can be fulfilled at the Salt Lake Center. Classes leading toward the two-year associate degree in nursing, law enforcement, librarianship, end material design are also available. After admission to graduate school, students can take selected courses toward the master's and doctor's degrees.

In addition, special classes and programs for credit or noncredit are organized upon request for educational, business, industrial, church, and other interested groups. Forum Assembly and Know Your Religion are examples of lecture series offered for interested people throughout the Salt Lake Valley. The Salt Lake center also sponsors Education Days and Education Weeks.

Special Degrees

Bachelor of Independent Studies

Brigham Young University offers a special bachelor's degree designed for adults. This degree is of particular interest to persons already in various professions or businesses and to housewives, armed forces personnel, and retired persons. The Bachelor of Independent Studies degree has as its goal the development of the individual in a wide area of intellectual interests: it is not intended to prepare the participant for a particular profession or occupation.

Applicants for the degree will be placed in individual programs of independent study. There are five areas, each to be completed as a unit:

Foundations
Man and the Meaning of Life
Man and Beauty
Man and the Universe
Man and Society

The student covers the prescribed material and curriculum outlines in each area and proves his proficiency.

He is then admitted to a two-week summer seminar at BYU, after which he moves on to the next area of study. A final creative project and seminar complete the degree requirements.

Previously earned credit is considered for transfer acceptance to this program, and some waivers of study areas are available depending on a person's experience, ability, and previous credits.

Information and degree application materials can be obtained by writing to Bachelor of Independent Studies Degree, 223 HRCB.

Nursing Degrees

The BYU-Salt Lake Center for Continuing Education in cooperation with the College of Nursing provides for an associate degree and a bachelor's degree in nursing. This program is the same as that offered on the Provo campus through the College of Nursing. For further information contact the BYU-Salt Lake Center for Continuing Education.

Associate Degree in Law Enforcement

Both the Salt Lake Center for Continuing Education and the Department of Home Study have programs leading to an associate degree in law enforcement. Interested parties may contact either office for details.

Associate Degree in Family Living

The Department of Home Study has arranged to facilitate an associate degree in family living for the adult who is not on campus. Specific information on this associate degree can be obtained from the Home Study office.

Business Programs

The need for continual development opportunities for managers throughout their careers is well attested to by the fast-changing pace of technological and organizational climates in response to the opportunities and problems of modern society. .

Weekend Management Seminars are usually held biannually on a Friday and a Saturday in major cities in the Western States and Canada. The seminars are designed for managers and supervisors in business, government, and civic organizations and for church leaders: men and women who have responsibility for supervising the work of other people.

Those attending learn new management concepts and skills and how to apply new concepts to prior experience.

Summer Conferences are held each month, May through August, on campus and at Alta Lodge, Alta, Utah. The conferences are five-day intensive sessions of management development to meet the needs of modern managers.

The conferences are designed for upper- and middle-level managers and others preparing for those positions in business firms and other organizations.

Student Services

Tutoring Service

Jerry L. Jensen, Coordinator (140 BRMB)

Through the College of General Studies, Brigham Young University provides a tutoring service for all BYU students who need help beyond their regular classroom instruction.

Tutors are students who have demonstrated competence in the subject for which they act as tutors and who have been authorized, by the department responsible for that subject, to act as tutors.

All possible help from the class instructor and, where available, from "help sections" of the course should be utilized before employing a tutor.

Tutors may be contacted through the Tutoring Service, 140 BRMB, Ext. 3826.

Personal Development Center

Of primary concern to Brigham Young University is the welfare of each individual student. While obtaining an education, students often find themselves in situations where they need or desire to develop their interpersonal or social skills and are confronted with difficult decisions or problems of adjustment. Accordingly, they may seek the assistance of persons skilled in working with students in these areas. For this reason the University maintains a fully accredited Personal Development Center, staffed by well-qualified, professional counselors.

The purpose of the Personal Development Center is to promote the personal growth of individuals within society and within the University community. The services provided to students include counseling, skills development, testing, and information.

Counseling. Many students seek counseling. In general, they come to the center for reasons of growth or decision making. Specifically, they come for help in such areas as making career choices or choosing majors, dealing with study problems, developing social and interpersonal skills, growing in greater self-understanding, and working through personal problems. Some students find that individual counseling on a one-to-one basis with a counselor offers greater assistance, while others may benefit more in a group counseling situation, where several students and a counselor meet together. In both individual and group counseling, the primary focus is not upon the student's deficits or upon long-term therapy—although the latter is not neglected—rather, it is upon assisting the student to grow, mature, and accept responsibility for his actions.

Skills Development. The Personal Development Center provides a program to help students develop academic, social, and interpersonal skills for coping more effectively with college life and other situations. Students may participate in one or more of these learning programs, where they may be taught the skills they wish to improve. Such a program may be individually worked out for each student through the help of a counselor.

Testing Services. Tests for achievement, ability, interest, and adjustment are given to all students who request them through a counselor. Data from these tests are used as a basis for counseling in educational-occupational and personal-social problems.

Information Services. A comprehensive, current collection of essential occupational, educational, personal, and social information is maintained in the Personal Development Center library. In addition to many occupational monographs, briefs, and current catalogs of major universities and technical schools, there is an abundance of materials available relating to personal and social adjustment, including such areas as personality development, dating, marriage, budgeting, personal grooming, and college adjustment.

Career Education Program

Career education is a lifelong process of personal and career exploration and development. This process involves continuous decision-making based on personal evaluations of goals, values, and opportunities. It is particularly important to students preparing for their entry occupation and future life-style to receive effective information and guidance during the exploratory and planning process. Such timely assistance can enhance the efficiency and appropriateness of a student's academic and life preparation.

The Career Education Program provides assistance with making educational and career choices to students without a declared major. Services include a class designed to teach decision-making skills, a laboratory to help students apply decision-making skills to the choice of a major and/or an occupational field, life-planning workshops concerned with exploration of personal goals, interest and personal preference testing, and a corps of advisers to help students explore educational and occupational opportunities and to select a major best suited to these opportunities.

The Career Information Center, 135 BRMB, contains detailed, current information about numerous occupations, college majors, educational programs approved by national associations, professional licensing requirements for various states, and placement information about recent BYU graduates.

For information or assistance, come to the Career Education Department, 135 BRMB, or call Ext. 2687.

Veterans' Service

For information concerning educational benefits available to those who qualify under the Veterans' Readjustment Benefit Act, please contact the Military Affairs Office, B-238 ASB, or call Ext. 4371. Forms for certification may be secured and processed to assure proper payment of benefits.

War Orphans Education Program. Students who are dependents of veterans under the War Orphans Education Program, and who are entitled to benefits, should also contact the Military Affairs Office for enrollment certification and related information.

Selective Service. For information about the Selective Service System, please contact the Military Affairs Office, B-238 ASB, Ext. 4371.

International Student Advisement

International students include all students who have F-1, J-1, or immigrant or permanent resident visas, even if the holder is currently residing in the United States. All correspondence regarding admissions and other matters should be addressed to the Admissions Office, A-153 ASB.

Indian Students

Special opportunities are available for Indian students from North, Central, and South America and for students from the Pacific islands. These students are urged to contact the Indian Education Department, 113 BRMB. (See also Indian Education in the List of Courses section.)

Student Health Service

Student health services are available at the Howard S. McDonald Health Center for all full-time students carrying 8½ credit hours or more, who have a valid activity card. The center functions year-round, with regular clinic hours, by appointment, from 8:30 a.m. to 4:30 p.m., Monday through Friday. After 4:30 p.m. daily and all day Saturdays, Sundays, and holidays, the center is open to urgent care and there is an extra fee charged for seeing a physician during these times. Hospitalization, when necessary, is available at the Utah Valley Hospital.

The health center offers the following services at a reasonable rate:

1. Consultation with a nurse-practitioner, general physician, or specialist—by appointment—between 8:30 a.m. and 4:30 p.m. weekdays
2. Immunization
3. Pharmacy
4. Physical therapy on referral from a physician
5. Laboratory tests
6. X-ray examination
7. Emergency care twenty-four hours a day

A doctor will be summoned after hours for emergencies on a fee-for-service basis. Services not available at the health center are available by referral at outside facilities.

A student may elect to prepay for his care at the health center by purchasing the Student Health Plan at registration. This entitles the student to the services of the health center without additional cost. For more information on the Student Health Plan, see the health center brochure.

To complement the services of the student health center, an insurance program, designed to cover hospitalization and emergency care twenty-four hours a day, is offered to all full-time students at a nominal cost. This voluntary program is fully endorsed by the University and provides for a wide range of medical services. Students not otherwise protected by health insurance are urged to secure this excellent service. For further information, insurance brochures are available at the health center.

Eligible students are not required to have insurance or to participate in the health plan to use the McDonald Student Health Center.

The health center is bound by the laws of confidentiality, and personal information will not be released to a third party without written permission from the patient.

BYU Bookstore

The BYU Bookstore, located in the Ernest L. Wilkinson Center, offers a department-store variety of merchandise and services to thousands of students, faculty, and staff. Textbooks, school supplies, and a large selection of trade books are the main items; but such things as art and office supplies, cards and gift items, cosmetics, clothing and sportswear, records and stereos, cameras, and briefcases may also be obtained.

The bookstore also offers many services. A few of these include typewriter rentals, check cashing, money orders, special orders for books, gift wrapping, film processing, magazine subscriptions, copying services, and repairs for office equipment, cameras, fountain pens, and watches.

Placement Center

Prospective graduates should register and establish a relationship with the Placement Center during the Fall Semester of the year in which they plan to graduate. Each graduate is encouraged to work closely with the Placement Center to develop a personal approach in seeking and obtaining career employment.

The Placement Center is a service department that specializes in helping students locate career employment opportunities. By registering with the center, the graduate or prospective graduate gains access to many valuable services—services which include individual and group counseling, the arranging of on-campus student interviews with employer representatives, and the providing of information about specific job opportunities submitted by employers from business, industry, education, and government. The center also maintains a complete collection of books, articles, magazines, and brochures relating to employing organizations. Materials are also available on such matters as how to write letters of application, how to prepare resumes, and how to conduct oneself in personal interviews.

To maximize the number of employment contacts available to graduating students, the center works in close cooperation with deans, chairmen, and liaison personnel in each academic department. Close relationships are also maintained with the Advisement Center located in most colleges.

Graduating students are encouraged to begin their career searches early and to register with the Placement Center, D-240 ASB.

Student Living and Activities

Residences

Quality apartment living is an important, indeed an integral, part of a student's total educational experience at BYU, and each student should carefully consider the accommodations available in view of the type of living experience he desires, the amount of time available for activities within his housing situation, and his economic needs. Living accommodations are available on campus and in the surrounding community, and definite programs have been established within University residence halls and with landlords who rent to students off campus to integrate living experiences with the total University educational program.

Campus Housing

Campus housing includes board-and-room residence halls for men and women, apartment living for women, and married student apartments. Each residence hall is directed by a competent adult head resident who lives in the hall. Assisting the head residents in the board-and-room areas are several resident assistants—mature, advanced students who live with the student group, giving each student a close personal contact with the residence hall staff. Each student is known personally by the staff and has someone immediately available to assist him with normal student problems.

The residence hall program is designed to provide the student with experiences in democratic self-government, development in the acceptance of responsibilities that go with maturity and independence, and assistance in learning to develop human relationships in working and living with others.

Residence Halls for Men and Women. Board-and-room services for men and women are provided in Helaman Halls and Deseret Towers. Helaman Halls consists of four halls for men and four for women; Deseret Towers has four halls for men and two for women. Each hall contains student rooms, study rooms, recreation areas, central shower areas, adequate laundry and storage facilities, and a head-resident apartment. The central buildings feature spacious cafeterias, dining rooms, reception areas, offices, post offices, and vending facilities for the entire residence area.

Apartment Living for Women. Housing for women is provided in Heritage Halls, which consists of twenty-four apartment-type buildings. Each apartment has a combination kitchen-dining-study room arrangement, three bedrooms, and a bath. In addition, there are large living rooms, a recreation room, head resident apartment, and laundry and storage facilities in each building. Six girls live in each apartment, cooperatively preparing their meals and purchasing their food. The apartments are completely furnished except for bedding, kitchen utensils, and dishes. Food is purchased cooperatively by the residents of each apartment.

Help in the homemaking experiences of budgeting, buying, meal planning, and the selection, care, and construction of clothing is available from specialists assigned to Heritage Halls. Also, a specialist is available to assist students in planning social activities, developing recreational skills, and learning the wise use of leisure time.

Residences for Married Couples. Family accommodations for 612 married couples and their children are provided in housing developments known as Wymount Terrace and Wyview Park.

Wymount Terrace consists of family apartments arranged in quadrangles around enclosed lawn and play areas where children may enjoy themselves without being endangered by traffic. Each apartment has a balcony or porch overlooking the inner court and is furnished with a gas range, refrigerator, drapes, and garbage disposal. A limited amount of furniture is available for rent from the University. These apartments are not plumbed or wired for washers and dryers, but the area is served by three self-service laundry centers. Four apartment sizes are available in this area, and, as in other married-student housing, these units are assigned according to family size.

Wyview Park consists of one-, two-, and three-bedroom mobile homes placed on permanent foundations and connected to power, water, and sewer lines to provide all the conveniences of permanent homes. Each unit is equipped with air conditioning, refrigerator, garbage disposal, built-in gas range, carpeting in the living room and bedrooms, and built-in chests of drawers. A laundromat, a children's play area, an adult recreation area, a community assembly room, a community park, and a dairy products outlet are also available.

Applications for Campus Housing. Students who plan to enroll at Brigham Young University and live in a University residence hall should contact the Office of Student Housing, C-141 ASB, about a year in advance. A housing application form will be sent to each inquiring student. An application fee of $25 must accompany the completed application when it is returned to the University. A residence hall assignment and appropriate agreement forms are prepared on the basis of the date of receipt of the application by the housing office and are mailed to students in late spring or early summer.

Acceptance to the University. The validation of any campus housing reservation is contingent upon the student's official acceptance and admission to the University.

Rental Agreements. A student planning to live in campus housing will be expected to sign a rental agreement for the accommodations he will occupy. He should be prepared to live by the terms of this agreement once he has familiarized himself with its terms, signed it, and returned it to the Office of Student Housing; this will avoid any possible misunderstanding and/or financial loss. Agreements are made for the academic school year.

Time of Arrival. Residence halls are not open to students prior to the announced opening date, which is usually the day before freshman orientation begins. The University does not advise students who are going to live in campus housing to arrive before that date.

Residential Housing

Brigham Young University students who live off campus must reside in University-approved housing. The University has formulated minimum specifications which all rental units in the community must meet to accommodate BYU students. During each school year, all rental facilities listed with the Residential Housing Office are inspected and classified according to their physical condition and arrangement.

Listing Service. The Residential Housing Office maintains a complete listing of all approved rental facilities in the community. Listing cards are kept up to date, giving complete and detailed information about each rental unit. At present, more than 19,000 students can be accommodated in modern residential apartments and privately owned homes. These accommodations consist of apartments and sleeping room facilities. The University requires that each landlord provide supervisory personnel to see that proper living standards are maintained.

Student Activity Center

The Ernest L. Wilkinson Center is the focal point for informal education and out-of-class student activities at Brigham Young University, providing a congenial setting for meals, games, hobbies, music, art, and interpersonal exchange.

Several service and activity areas are located on the first floor, including the Photo Studio, Barber Shop, Post

Office, Lost and Found, Games Center, and the Hobby Center. In the Hobby Center students can work on special projects or take advantage of individual or group instruction in woodworking, ceramics, photo developing, candle making, lapidary work, and macrame. The Games Center offers bowling, table tennis, an outdoor rental program, and a number of other games and services. Bicycles—both single and tandem—may be checked out.

The Wilkinson Center also serves as headquarters for the **Daily Universe**, the **Banyan**, and student government. Student government sponsors a number of activities each year, including Homecoming, the Preference Ball, Concerts Impromptu, and many opportunities for involvement in volunteer projects.

Other facilities include ballrooms, an art gallery, a beautiful reading room, an area for stereo listening and television viewing, and a movie theater. The BYU Bookstore, located on the west side of the Wilkinson Center, carries textbooks, school supplies, and a variety of other items. Cafeterias provide a full meal service during the day, and snack bars remain open from early in the morning until late at night. For special evenings, dinners and entertainment are available in the sixth-floor Skyroom, which overlooks the entire campus, the city of Provo, and Utah Valley.

Religious Opportunities

Student have many excellent opportunities to participate in religious activities at Brigham Young University.

BYU Stakes. The Church is organized into a number of stakes, and each stake is composed of several branches of 200 to 300 members each. The stakes and branches are organized specifically to provide students the maximum opportunity for active participation in programs of the Church. Spiritual growth and the development of a strong testimony of the divinity of Jesus Christ are goals fostered by the campus stake and branch organizations, whose programs are closely correlated at all levels with the activities of the University.

All single LDS students living away from home become members in one of the BYU branches. Married students not living in University housing may attend either the BYU branch or the city ward in which they reside.

Devotional Assemblies. Devotional assemblies are held, usually in the Marriott Center, each Tuesday on alternate weeks and are scheduled so that there is no conflict with classroom work. These assemblies enable students to hear messages of inspirational power from carefully chosen Church leaders, including many General Authorities of The Church of Jesus Christ of Latter-day Saints.

Campus Organizations

There are, at Brigham Young University, well over 100 student organizations, representing every imaginable interest—honorary societies, special interest groups, geographical and missionary clubs, departmental organizations, and many others—each offering opportunities for service, academic growth, recreational and social activity, or a combination of all these.

For more detailed information, contact the student Vice-President of Organizations, 425 ELWC.

Student Government

All registered students are automatically members of the Associated Students of Brigham Young University (ASBYU). This body is presided over by a student-elected president, executive vice-president, and academic, athletic, culture, finance, organizations, social, student community service, women's activities, and freshman involvement vice-presidents.

Each elected officer is responsible for the planning and implementation of his own programs. Many cherished BYU traditions such as Y day, Belle of the Y, Preference Ball, Homecoming, and others are direct results of the efforts of student officers.

These elected student officers meet together weekly as an Executive Council. This group is the student voice to the University community, and its members are also members of several University committees.

Activities in student government are not limited to elected officers. During the school year, more than 6,000 students participate directly in either planning or administering the various projects and activities conducted by the ASBYU. For detailed information contact the offices of the fourth floor of the ELWC.

Athletics

The University's interest in athletics is a natural product of the philosophy of The Church of Jesus Christ of Latter-day Saints, which regards the human body as a tabernacle of the spirit. It is expressed in the following statement by Stephen L. Richards:

> To develop the body to be a fit tabernacle for the spiritual child of God which dwells within it is one of the major concepts and goals of our education. There need be nothing debasing in wholesome contest. In a sense life itself is a contest in the counterplay of all the forces, physical and spiritual, which affect our living; and the development of strength and virtue comes largely out of such contests.

Competitive athletics, then, are a vital and integral part of an educational system designed to prepare young people for service and for productive careers.

Intercollegiate Athletics for Men

One of the first things the newcomer to BYU discovers is that the students are enthusiastic sports fans and sports participants. As contestants and spectators, the students, through the athletic program, generate a vitality and appeal that cannot be duplicated.

Brigham Young University is a charter member of the Western Athletic Conference (WAC), which affiliates BYU with seven other schools: Arizona, Arizona State, Colorado State, New Mexico, University of Texas at El Paso, Utah, and Wyoming. The Department of Intercollegiate Athletics—an arm of the College of Physical Education—sponsors teams that compete in ten intercollegiate sports: basketball, baseball, cross country, football, golf, gymnastics, tennis, indoor and outdoor track and field, swimming, and wrestling. The conference has produced several national team champions and scores of individual champions since it came into being in 1962.

BYU leads the WAC in the number of team championships won since the league was formed. The Cougars have won seven championships in wrestling, four in tennis, four in basketball, four each in cross country and track, four in golf, and one or two in most of the other sports. Several national champions and all-Americans have emerged from the ranks of BYU athletic teams.

BYU has been the site of numerous major athletic events, including the NCAA track-and-field championships in 1967, the NCAA wrestling championships in 1969, and five NCAA Far West Regional basketball tournaments. The summer of 1975 will see a return engagement of the NCAA track-and-field championships as part of the BYU Centennial celebration.

Intercollegiate Athletics for Women

Brigham Young University is an active member of the Association of Intercollegiate Athletics for Women and belongs to the Intermountain Region of AIAW. Region VII (Intermountain) includes the colleges and universities in Arizona, Colorado, New Mexico, southern Idaho, Utah, and Wyoming and the University of Texas at El Paso.

Brigham Young University competes in thirteen sports: archery, badminton, basketball, field hockey, golf, gymnastics, swimming and diving, synchronized swimming, skiing, softball, tennis, track and field, and volleyball.

The program is administered through the Women's Physical Education Department.

BYU has placed well in regional competition and has won several championships during the past few years. The volleyball team has consistently qualified to attend the national championship and has placed in the top eight positions, with the best placement being second in 1972.

BYU has hosted the National Gymnastics Championship and the National Volleyball Championship.

Extramural Sports

Extramural sports are designed to give expert performers a chance to compete with athletes from other universities in sports not included in the intercollegiate athletic program. Men's teams are sponsored in rugby, soccer, volleyball, skiing, weight lifting, and lacrosse.

Intramural Sports

BYU's intramural program, consisting of more than seventy-five events and involving thousands of participants in both men's and women's activities, is one of the largest and most comprehensive in the United States. The purpose of intramurals is to provide opportunities for direct involvement and participation and to afford opportunities for fellowship, recognition, and leadership. Winning is deemed important, but participation is essential.

Any student may participate in intramurals either by joining a BYU ward or by participating in a housing-unit or independent team. In individual events a person may enter independently or as a representative of a housing unit or ward. Also, since intramurals are student governed, there are limitless opportunities for students to become involved as council members, league coordinators, sports managers, and officials.

Highlighting the year's events is the annual intramural awards banquet, at which hundreds of awards are given in recognition of outstanding organizations, officials, athletic directors, and champions of the team and individual events.

Dance Performance Groups

Through the College of Physical Education, BYU sponsors outstanding dance performance groups in folk dance, ballroom dance, ballet, and modern dance. Each year these groups perform throughout the United States and in Europe.

In addition to great success in numerous prestigious performances, the International Folk Dancers have completed nine successful European tours, while the Ballroom Dance Team achieved its highest honor by winning first place in the British Open Ballroom Dance Championships in London. Orchesis and Theater Ballet each present several excellent performances on and off campus each year.

All interested students are encouraged to become active members of these exciting groups.

Student Publications

One way to obtain practical writing and editing experience is through student publications. Both the student newspaper, the **Daily Universe**, and the yearbook, the **Banyan**, allow students to polish specific skills gained in classroom work.

The **Daily Universe** is published five times weekly during regular semesters and twice weekly during the Summer and Spring terms. More than sixty students staff the editorial, advertising, reporting, photographic, and business positions necessary to publish the paper.

The **Banyan** is the students' photographic record of each year's school activities. The more than fifty staff members who publish this volume gain valuable training in writing, editing, photography, and graphic art.

The **Brigham Young University Directory**, a listing of all BYU students, faculty members, and administrators, as well as student activities and church organizations, is also published by a student staff.

In addition to these three publications, several excellent departmental and college journals give students an opportunity to publish their own writings.

General University Services

University Library

The Harold B. Lee Library contains the library collection, which includes over a million bound volumes and an extensive collection of pamphlets and titles on microform. Numerous professional journals and other current serials, as well as local, regional, and national newspapers, are also available. The library is a depository for United States, United Nations, Mexican, and Canadian government documents, and regularly receives publications of state and local governments.

The general library facilities are available to students, faculty, alumni, and other interested persons. Regularly enrolled students present their identification cards to borrow books: others may obtain a permit from the circulation librarian. The library is open during the academic year from 7:00 a.m. to 11:00 p.m., Monday through Saturday.

The general collection and subject reference materials are available on open shelves on four of the five levels—two below and two above the ground floor. The general reference collection, the public catalog, the circulation desk, and administrative offices are on the ground level. Study space is interspersed with stack areas on each floor. An information booklet is available at the general reference desk to assist those who use the library facilities.

The library's special collections, many of which are confined to specific subject areas, are on the fourth level. Many of these fine collections are gifts to the library from individuals whose interests have led them to devote many years to the acquisition of fine books. The books and other materials from the special collections area are not available for general circulation, but may be checked out for use in a special reading room.

In addition to printed materials, the library maintains and provides access to an extensive collection of nonprint media. Several well-equipped learning resource centers at various locations both on and off campus, as well as within the Lee Library, provide an optimal environment for the display of specialized out-of-class learning experiences. Packages of nonprint instruction are available in many formats and include phono discs, audio- and videotapes, slide sets, and filmstrips.

Educational Media Services is located in the Herald R. Clark building. Educational, church, and entertainment films, projectors, recorders, and a variety of other media equipment are available for rental to students and faculty. This library department also distributes by cable eight educational and three commercial TV channels around the campus for student and faculty use and provides for television playback of various educational, Forum, and Devotional talks that can be scheduled through these facilities and the learning resource centers.

The facilities of other libraries operated by the LDS Church are also available to students of Brigham Young University. The Genealogical Society Library in Salt Lake City contains approximately 100,000 books and over 800,000 rolls of microfilm. These include family histories; genealogical records; biographies and autobiographies; military records; cemetery inscriptions; town, county, and state histories of the United States; and both local and national histories of other nations. The Utah Valley Branch Genealogical Library, operating under the general direction of the Genealogical Society, is headquartered at the Harold B. Lee Library.

Students and faculty may also use the facilities of other Utah college and university libraries through a cooperative arrangement instituted by the University and College

Library Council of Utah. The BYU Library is a participating member of that council.

Facilities of the library of the Church Historical Department are available by arrangement to advanced students for research. The office is located in the new LDS Church Office Building in Salt Lake City, and is open from 8:30 a.m. to 5:00 p.m., Monday through Friday. Its collections contain publications of the Church, periodicals of the various auxiliary organizations, reports and histories of the various missions, general Church historical records, biographies of Church leaders, and other pertinent published and archival material.

Alumni Association

Background

The Alumni Association was organized in 1893 to promote the general welfare of Brigham Young University. Today it serves more than 155,000 alumni and provides a number of valuable services and programs for students still at the Y. The BYU Alumni Association belongs to the 1,535-member American Alumni Council and has been distinguished as one of only seven alumni organizations in the United States, Canada, and Mexico ever to receive both the coveted Ernest T. Stewart Award and the Alumni Administration Award.

Membership Prerequisites

Administration and faculty members and all former students who have earned the equivalent of ten or more semester hours of credit at BYU automatically become members of the Alumni Association. There are no dues or membership drives, but the Association does encourage contributions (tax deductible) to the BYU Annual Fund and to special projects.

Services to Students

1. Four-Year Alumni Scholarships are presented each year to two deserving freshmen. Full tuition and fees and an allowance for books and supplies are included in the generous scholarships funded by Karl G. Maeser Associates, a group of prominent alumni.
2. Meeting Place. The Alumni House is used by student groups for Church meetings, banquets, dances, socials, and parties.
3. Commencement Checklists. All students anticipating graduation are sent a pocket-size checklist of those things that must be completed before obtaining clearance for graduation.
4. Graduation banquets in April and August are sponsored by the Alumni Association for graduates, their families, and friends. These memorable affairs usually include a presentation on BYU and an address by a General Authority of the Church.
5. Miniature Diplomas. Each graduate receives a plastic miniature of his diploma shortly after graduation. This miniature diploma is also his official membership card in the Alumni Association.

Services to Alumni

1. On-campus activities include the Parents' Reception, Homecoming Week and Founder's Day in the fall, and the Emeritus Club Annual Meeting in the spring. Homecoming features football; class and club reunions; an assembly, dance, and concert; the Frolics; and the Alumni Homecoming Banquet, at which special alumni awards are made.
2. Parents' Program activities are provided each year for parents of BYU students. Activities include the Parents' Fall Reception (especially for parents of new students) and invitations to attend off-campus events.
3. Alumni receptions throughout the world provide opportunities for former BYU students to renew old acquaintances and to hear BYU administrators and faculty members discuss current topics of interest.
4. Alumni travel-study tours open up new horizons in all parts of the world for alumni, parents, and friends of the University. These specially designed tours are directed by BYU faculty members, and credit is available.
5. The **BYU Today** newspaper is sent free nine times a year to alumni, friends of the University, and parents of current students to keep them informed on the latest happenings at BYU.
6. Aspen Grove Family Camp in the beautiful Wasatch Mountains on the eastern slopes of Mount Timpanogos is open from the middle of May to the first of October for summer camping adventures, featuring horseback riding, swimming, hiking, fishing, softball, tennis, good food, and plenty of relaxation. Aspen Grove is reserved for family camping from the middle of June to the last of August. Before and after this time, it is available for youth conferences, branch parties, seminars, and the like. Its lodge may also be scheduled from October to May for winter and early spring activities.

Computer Services

Computer Services provides extensive computing facilities to all faculty, staff, and students. In addition to equipment, extensive computer library programs and experienced personnel are available to help users with their particular problems. Administrative users should contact the Assistant Director of Computer Services—Administrative, 193 MSCB, Ext. 4251. Instructional and academic users should contact the Assistant Director of Computer Services—Instructional, 403-C ESTB, Ext. 3288. All users pay the costs of Computer Services operations according to approved funding-control procedures.

There are at present eleven major computing centers on campus, with more than thirty computers of various sizes.

1. The IBM 360/65 installation in the TMCB includes all basic input/output equipment, including about fifty time-sharing terminals. This equipment is augmented by a NOVA 800 minicomputer which interfaces with a Burroughs TC 500 located in the HRCB.
2. A DEC-10 time-share system in 425 ESTB includes forty remote terminals located around campus, with a Remote Job Entry Station in 62 JKB. Also in 425 ESTB is a real-time system with a NOVA 2/10 minicomputer, Calcomp plotter, and graphics terminal.
3. The IBM 7030, 141 ESC, includes card and tape input and printer and tape output. This installation also includes a Calcomp drum plotter driven by a NOVA 800 minicomputer.
4. The Technology Center, 300 ESTB, includes a PDP-8/I with card and paper tape input, paper tape output, and six remote terminals. In 115 SNLB there is a PDP-8/I with one Tektronix graphic screen and sensor probes attached for on-line experiments.
5. The Computer Science Department has a PDP-8, a NOVA, and a PDP-11 in 237 TMCB. The PDP-11 is attached to an electronic organ.
6. The TICCIT Project (Time-shared Interactive Computer Controlled Informational Television), has a CIP 2000, a NOVA 2/10, and two NOVA 800 minicomputers in W-STAD.
7. The Electrical Engineering Department has a NOVA 2/10, NOVA 800, HP 2100, DCC 116, CIP 2200, and PDP 11/20 in the ESTB to support electrical engineering research and laboratory work.
8. The Physics Department has a PDP-15 with graphic terminal capability in 157 ESC and a PDP-11 in the NUCL.
9. Instructional Services has two PDP-11 minicomputers. One is used for listening carrel control in the HBLL. The other is located in 142 HRCB.
10. The Psychology Department has in its experimental lab, 1303 SFLC, a PDP-8 for control of on-line experiments.
11. The Chemistry Department has a PDP-11 for experi-

ment control and data acquisition and for preliminary data analysis.

EAM services include open-shop unit record machines in 156 TMCB; open-shop keypunch machines in 142, 145, and 199 TMCB, 62 JKB, and 480 ESTB; and closed-shop keypunch and data-entry devices in 154 TMCB. Optical scanning equipment is available through the Testing Department, B-268 ASB. Consulting services are available at 146 TMCB, 424-A ESTB, 139 ESC, and 62 JKB. Hours are posted in each consulting room. Short "quickie" classes are conducted regularly in various basic computer subjects.

The Computer Services' **Users Guide** is available in the BYU Bookstore.

University Collections

Museum of Archaeology and Ethnology

The museum's archaeological collections consist of materials from both the Old World and the New World that relate to the cultural history of man. Special areas of interest—Mesoamerica, the American Southwest, and prehistoric Utah in particular—are emphasized in the museum displays. Most of the artifacts displayed have been collected by members of the Department of Anthropology and Archaeology while on field expeditions.

The ethnological collections consist primarily of material and items donated by people who are interested in the growth of the museum. Collections from Polynesia, Mexico, and the Southwest are on display. Of special interest is a display of Iroquois artifacts that reflect early rituals and customs.

Supplementing these materials are replicas of such famous archaeological discoveries as the Rosette Stone and well-known relics from Palenque and Stela 5 from Izapa in Mesoamerica. Also among the museum collections are field excavation records, photographs, site survey cards, maps, and drawings of materials excavated by University archaeological expeditions.

These museum collections are open to the public and the student body for viewing on the first floor of the Maeser Building.

Collection of Ancient Instruments

The Lotta Van Buren collection of ancient instruments and music contains rare old instruments, modern reproductions of ancient instruments, literature on ancient instruments, and a library of old instrument scores. Also included are a number of ancient costumes and pictures of interest.

The Van Buren collection is one of the few collections of its kind in the United States in which all instruments are in playable condition. Several concerts are given each year in which some of these fine instruments are used.

This unusual collection, housed in a specially equipped room (E-400 HFAC), is open for inspection by the public.

Fine Arts Collection and Gallery Shows

The Fine Arts Collection consists of paintings, sculpture, drawings, etchings, engravings, prints, lithographs, reproductions of art works, and slides. Among the well-known artists represented in the collection are Mahonri Young, Maynard Dixon, J. Alden Weir, John E. Costigan, Peter Hurd, John Twachtman, Ralph Blakelock, Frederick C. Church, Thomas Cole, Thomas Hill, Dominique Ingres, John Marin, Benjamin West, Camille Corot, Arthur B. Davies, James Whistler, Winslow Homer, Edouard Manet, and Rembrandt.

Works frequently exhibited in the galleries of the Harris Fine Arts Center are drawn from The Memorial Collection of Utah Painters (both early and contemporary), the Lorraine Allen oriental art collection, the Dr. O. K. Cosia collection, the Karel Waterman collection, the Dr. and Mrs. Buris France Robbins collection, and contemporary invitational collections. In addition, annual shows exhibit current works of faculty members and students.

Geological Collections

The University's geological collections consist of an unusually complete series of minerals that numbers in the thousands and represents the great western mining districts and hundreds of other notable localities. Part of this collection once represented the nucleus of Salt Lake City's famous Deseret Museum collection.

The paleontological collections contain several species of dinosaurs that have not yet been named or scientifically studied. Also, the collections include numerous invertebrate fossil specimens.

The Earth Sciences Museum in the Eyring Science Center displays a representative selection of fossils and minerals from various locations throughout the world. An unusual free-standing mount of a carnivorous Utah dinosaur is located beside the Foucault Pendulum in the main lobby. All displays are open free to the public.

Life Sciences Museum

This museum is located primarily in the Heber J. Grant Building, with some exhibits and collections in the Brimhall, Widstoe, and B-49 buildings. The museum is open to the public throughout the day Monday through Friday and on Saturday from 10:00 a.m. to 4:00 p.m. At present there are exhibits of local plants and animals as well as Arctic and tropical species. Some exhibits are designed to depict one species and its habitat; others show families, ecological relationships, and relationships to man. Because adaptation is a requisite for survival, this ecological principle is depicted. Life histories are told in pictures and prose. Also, the recently acquired M. L. Bean trophy collection is now on exhibition.

The Botanical Collection includes an herbarium of vascular plants, mosses, liverworts, lichens, algae, and fungi from many parts of the world. The vascular plant collection includes more than 10,000 species represented by over 150,000 herbarium sheets. The collection is made up principally of plants from western North America but includes many materials from the eastern states, Europe, Mexico, and Australia. Recent acquisitions of plants from Alaska, Greenland, Siberia, and the Canadian Arctic have added significantly to the collections of Arctic plants. The herbarium includes more than 2,000 specimens from the Mediterranean region of Europe and from the Middle Eastern Countries of Iran and Afghanistan. Separate collections of type specimens, poisonous plants, range plants, woody plants, and plant disease specimens are maintained. The herbarium is housed in B-49.

The herbarium includes the collections of I. E. Diehl, W. D. Stanton, B. F. Harrison, Maxcine M. Williams, L. C. Higgins, N. D. Atwood, F. H. Sargent, and S. L. Welsh.

The Zoological Collections consist of a large series of vertebrate and invertebrate species from North America and from many foreign countries. These materials are available to teachers, advanced students, and visiting scientists.

The invertebrate collections include numerous specimens of insects and their near relatives as well as many representatives of other phyla of invertebrates obtained locally and from many distant places. Medically important arthropods such as fleas, lice, mites, and ticks are represented. Special collections include the Lynn and Kate Irene Meibos Collection of mollusk shells; the Tom Spaulding and Ashby D. Boyle butterfly collections; and the Elmer and Lucille Johnson bee fly collection containing many types; the Charles W. Leng, Charles Schaeffer, Willis Blatchley, and Vasco M. Tanner collections of beetles, other invertebrates and the extensive collections of more than a half million insects are suitably preserved and available for research and other academic purposes.

The vertebrate collections consist of thousands of fishes, amphibians, reptiles, birds, and mammal research specimens. In addition to the representative series of local species, the vertebrate collections include the Chester Van Buren collection of South and Central American birds; the Robert G. Bee, John Hutchings, Merlin L. Killpack, Lloyd Gunther, Ashby D. Boyle, and J. Donald and Radia Daynes collections of birds' eggs; and the David Starr Jordan specimens of Hawaiian fishes. Staff members, graduate students and friends of the University have contributed material from Mexico, South America, Africa, Formosa, Malaya, the South Pacific Islands, and other areas throughout the world. The vertebrate collections also include the recently acquired big game trophy collections from Africa, India, and North America, contributed by M. L. Bean, A. Max Beach, W. Karl Brewer, and Mrs. L. O. Lillywhite.

Research grants from private and governmental agencies have made it possible to add materially to both vertebrate and invertebrate collections from southern Nevada, the Colorado River Basin, and other areas of the Intermountain West, Mexico, and Central America.

Broadcast Services

The University operates KBYU-TV (Channel 11) and KBYU-FM (88.9 MHz). KBYU-TV and FM process and transmit sight and sound to educate, challenge, inform, and question. The audience numbers in the hundreds of thousands, and the subject matter brushes the boundaries of man's knowledge.

The objectives of KBYU radio and television are to serve the broadcast needs of (1) the University's faculty and academic programs, and (2) the general public. Modern radio and television studios and a mobile unit provide students with practical training in on-the-air programming, broadcasting, and studio operation.

Institute for Ancient Studies

Hugh W. Nibley, Director (235 JSB)
R. Douglas Phillips, Associate Director (240 B-34)

Created by the Board of Trustees of the University, the institute serves as a research arm of the University for developing and disseminating information about ancient manuscripts of religious significance. As such, the institute affords scholars in ancient religion, biblical studies, classical languages and literature, early Christian church history, and related fields the opportunity and means to conduct intensive research in these areas.

The Institute for Ancient Studies, 110 B-34, is under the supervision of the dean of the Graduate School.

Research Division

The Research Division (Leo P. Vernon, Assistant Academic Vice-President—Research, 673 WIDB) is administratively responsible for organized research on campus, including projects supported by Research Division funds or by external agencies and organizations.

University funds for research projects are also available through the colleges and include support for project expenses, summer research fellowships, and academic-year research fellowships. Research proposals sent to external agencies for funding are processed through the Research Division, which assists in proposal preparation and administratively supervises the projects after they are funded.

In addition to faculty research projects, which use students extensively in supporting roles, the Research Division sponsors student-initiated work, such as the student projects supported by the Provo Rotary Club.

Organized research units have been formed to advance research programs in specified areas. Three such units, described below, are under the supervision of the Research Division.

Center for Health and Environmental Studies (Vernon Tipton, Director, 785 WIDB). The Center for Environmental Studies includes personnel from several colleges. Faculty members from twenty-four departments and seven academic colleges are involved in varying degrees with projects underway at the center. The principal objective of the center is to improve the quality of man's environment through research, training, and public information. This involves fostering and coordinating projects dealing with health and with the monitoring, restoration, and maintenance of environmental quality in selected areas. The center is also involved in the instruction of students in environmental studies.

Center for Thermochemical Studies (Delbert J. Eatough, Supervisor, 158 FB). The principal objective of the Center for Thermochemical Studies is the development of strong interdisciplinary research programs in several areas of chemistry. Problems of interest to industry, government, and the University are studied by faculty members and visiting scientists and involve the training of both graduate and undergraduate students.

Basic and applied research programs are conducted at the center, with emphasis upon (1) thermochemical studies, ranging from the determination of mechanisms for metal ion transport through membranes to the measurement of the values of thermodynamic properties associated with liquid-liquid separation technology, and (2) chemical studies, which focus upon the biological effects of trace metals. Titration calorimetry is the principal research tool used.

Family Research Center (Darwin Thomas, Director, 204-C SFLC). The Family Research Center was established to promote research concerning the social-psychological, emotional, and spiritual welfare of the family. It has an interdisciplinary focus, utilizing personnel from the Colleges of Social Sciences and of Family Living. Representatives from four departments (CDFR, FEHM, Psychology, and Sociology) constitute the executive committee, whose function is to foster and coordinate research and scholarly analysis of the family. The research activities of the center provide research experience for faculty and for graduate research assistants.

The goals of the center are: (1) to facilitate communication between researchers in a range of disciplines to help them discover common interests and ways in which they can complement each other; (2) to monitor family-related data regularly to ascertain areas in which research could be helpful; (3) to design and conduct research projects financed by non-University sources, projects that include basic research and applied research, as well as specific research about the family in the LDS culture.

The center is currently sponsoring long-term, ongoing research in three major areas: family socialization, children's moral reasoning and behavior, and theory building.

University Press

The Brigham Young University Press provides three major services to the University: (1) a University Press publishing program for scholarly and creative materials (the press has an expanding list of titles in print, with national and international distribution), (2) a complete university publications service for all sizes and types of publications required for the functioning of University programs, and (3) full mail service for the University, including operation of a U.S. Postal Service contract station in the Wilkinson Center, distribution of campus mail, and operation of a bulk mail center.

The publications service provided is comprehensive, from the initial stages of planning and scheduling through writing, editing, design and illustration, printing, promotion, and sales to packaging and mailing. For further information and a catalog of titles, contact the director's office, 209 UPB.

Food Services

As a convenience to students and faculty members, the University provides food services at very reasonable prices through several different operations: cafeterias, snack bars, vending machines, concessions, catering, a dairy products outlet, and a bakery.

Residence hall cafeterias located at Deseret Towers and Helaman Halls provide regular meal service for both residents and students living off campus who purchase meal tickets. Another cafeteria is located in the Wilkinson Center, where meals may be purchased with cash or with reduced-rate scrip books. Excellent food at slightly higher prices is available in the Skyroom on the sixth floor of the Wilkinson Center.

Snack bars at Deseret Towers, Helaman Halls, and the Wilkinson Center provide food throughout the day. Vending machines are located at various places on campus.

In addition, the University operates a dairy products laboratory where milk, ice cream, cheese, and other products may be obtained. This facility is also an outlet for products from the bakery.

Security/Police and Traffic

The Security/Police Office is a protective agency established for the benefit of students, faculty, and staff. It maintains effective liaison with the local police department and is entrusted with the proper enforcement of campus rules and regulations. All matters concerning security or requiring police action should be referred to this office by calling Ext. 2751.

Another major responsibility of this office is the control of campus traffic and parking. Every BYU student who owns, maintains, possesses, stores, or drives any motor vehicle in or about the state of Utah or intends to drive any such vehicle on the BYU campus must register that vehicle with the Security Office within two (2) days after bringing it to the Provo area.

The Security/Police Office also offers many other services to students and staff members, including the taking of fingerprints necessary for teaching certificates, government jobs, and ROTC between the hours of 10:00 a.m. and 12:00 noon Monday through Friday. In addition, an ambulance service is maintained in cooperation with the student health center, at no cost.

Licensing of Bicycles

All bicycles that are operated, parked, or stored on campus by any student, faculty/staff member of the University, or visitor must display a current Provo, Orem, or Springville bicycle license.

Automobile Registration

To obtain a parking or registration permit, the following must be presented at the Traffic Office, B-69 ASB:

1. The appropriate fee (no fee for registration only)
2. The name of insurance company with which the automobile is insured
3. Proof of no-fault insurance (automobiles).
4. Proof of liability insurance (motorcycles)

Traffic Regulations

Every student who is a resident of Utah or of a state other than those listed below must have a Utah license if he wishes to drive in Utah. The following states have entered into a compact and a license from any of them is good in all others:

Arizona
Alabama
Arkansas
California
Colorado
Delaware
Florida
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Louisiana
Maine
Mississippi
Montana
Nebraska
Nevada
New Jersey
New Mexico
New York
Oklahoma
Oregon
Tennessee
Utah
Virginia
Washington
West Virginia

For further details regarding traffic rules and regulations, a **Traffic Rules and Regulations Booklet** may be obtained at no charge from the Traffic Office located in the Abraham O. Smoot Administration and General Services Building B-69, Ext. 3906. All faculty/staff members and students will be responsible for the information contained therein.

Brigham Young University maintains a zoned parking system. Upper class permits—for juniors, seniors, and graduate students—are $12. Lower-class permits—available to all students—are $6. The required registration is free but allows no campus parking until after 4:00 p.m. in student parking areas.

Schools

The Graduate School

Chauncey C. Riddle, Dean (B-336 ASB)
Robert W. Laird, Assistant Dean

Admission

Admission to the Graduate School is contingent upon completion of the bachelor's degree or its equivalent.

Students of any race, creed, color, or national origin are accepted for admission to Brigham Young University provided they maintain ideals and standards in harmony with those of The Church of Jesus Christ of Latter-day Saints and meet the University's academic requirements.

Applications for admission may be obtained from the University Office of Admissions by a written request to the University Mail Answering Service, 268 UPB. Be sure to specify whether you desire a degree-seeking or a nondegree application.

A grade-point average of 3.0 is the minimum acceptable for regular degree-seeking status. Students with undergraduate grade-point averages of less than 2.5 are not eligible for admission on either degree-seeking or a nondegree status.

Admission to the Graduate School is contingent upon acceptance in a particular department and program as a degree-seeking student. To be considered, applications must include each of the following items and be filed before the announced deadlines:

1. Fully completed application form
2. Nonrefundable application fee of $15
3. Two official transcripts of all college work (including BYU)
4. Three letters of recommendation on the forms provided
5. Confidential interview form
6. Letter of intent

Each applicant is notified in writing by the Office of the Graduate Dean concerning his admission or nonadmission. Application deadlines are as follows (Some departments have other deadlines. Please see departmental information):

Deadline for— 1975	Degree-seeking	Nondegree-seeking	International Student
Spring Term	March 15	April 15	Jan. 15
Summer Term	May 7	June 7	March 7
Fall Semester	July 7	August 7	May 7
1976			
Winter Semester	Nov. 8	Dec. 8	Sept. 8
Spring Term	March 15	April 15	Jan. 15
Summer Term	May 7	June 7	March 7

Credit for Graduating Seniors

Seniors in their last semester of undergraduate work may apply graduate credit taken that semester in excess of the requirements for the bachelor's degree toward a graduate degree if they file a Senior Form with the Graduate School at the time of registration.

Preparation for Graduate Study

The wise undergraduate who intends to pursue a graduate degree will prepare himself in the following areas:

1. **Writing ability.** Since the ability to write clearly and correctly is of paramount importance to the graduate student, every undergraduate should seek to develop ready facility and confidence in English.
2. **Foreign languages.** Any foreign language important to a student's particular discipline should be mastered as early as possible. Mastery, not just a minimal reading ability, should be sought.
3. **Mathematics, statistics, and computer science.** Serious students will achieve skill in these areas appropriate to the natures of their particular disciplines.
4. **Scholarly skills.** Each student should thoroughly understand the organization of the library and should be proficient in evaluating sources, in documenting ideas, in preparing bibliographies, and in writing in the scholarly format of his area or specialty.
5. **Scientific research.** Any student who participates in or who must speak intelligently about science should gain an understanding of the intellectual nature of science, that is, the essence of scientific experimentation, the nature and uses of hypotheses, controls, etc.
6. **Research experience and publication.** Practical experience in scholarly and/or scientific research procedures under the close supervision of a skilled researcher is very useful to prospective graduate students. Also at least one publication resulting from such experience would be most valuable.
7. **Becoming known.** In honorable and unobtrusive ways, the student should become well known to faculty members from whom he will want letters of recommendation. Unusual originality, insight, and energy are very impressive, discipline being the key.
8. **Knowing your field and defining your interests.** Every student should know the leading world figures in his particular field, the leading current issues, and the publications which keep one abreast of progress. Each student should also have his own interests well mapped. He should know where, precisely what, and under whom he wishes to study on the graduate level, and why. He should have clear and realistic professional goals.

Graduate School Catalog

For further information, consult the **Graduate School Catalog,** which may be obtained from the Office of the Graduate Dean, B-336 ASB.

Graduate Degrees Offered

Doctor of Philosophy

- Botany and Range Science
  - Botany
  - Genetics
- Chemistry
  - Analytical-Physical Chemistry
  - Biochemistry
  - Inorganic Chemistry
  - Organic Chemistry
  - Physical Chemistry
- Child Development and Family Relationships
  - Child Development and Family Relationships
  - Marriage and Family Counseling
- Educational Psychology
  - Counseling and Guidance
  - Educational Psychology
  - Instructional Psychology
  - Special Education
- Engineering
  - Chemical Engineering Science
  - Civil Engineering Science
  - Electrical Engineering Science
  - Mechanical Engineering Science
- English
  - American Literature
  - English Literature
- French and Italian
  - French Language
  - French Literature
  - French Teaching Emphasis
- Geology
  - Economic Geology
  - Mineralogy, Geochemistry, and Petrology
  - Paleontology
  - Stratigraphy and Sedimentation
  - Structural and Field Geology
- Germanic Languages
  - German Language
  - German Literature
  - German Teaching Emphasis
- History
  - American History
  - Modern European History
- Microbiology
  - Genetics
  - Microbiology
- Music
- Physics and Astronomy
  - Acoustics
  - Astrophysics
  - Atomic Physics and Spectroscopy
  - Biophysics
  - Nuclear Physics
  - Planetary and Space Physics
  - Plasma Physics
  - Solid-State Physics
  - Theoretical Physics
- Psychology
  - Clinical Psychology
  - General Psychology
  - Instructional Psychology
- Sociology
  - Family Sociology
  - Social Organization
  - Social Psychology
- Spanish and Portuguese
  - Spanish Language
  - Spanish Literature
  - Spanish Teaching Emphasis
- Theatre and Cinematic Arts
  - Dramatic Arts
- Zoology
  - Entomology
  - Genetics
  - Zoology

Doctor of Education

- Business Education
- Educational Administration
  - Community College Administration
  - Community School Administration
  - Public School Administration
- Educational Psychology
  - Counseling and Guidance
  - Educational Psychology
  - Special Education
- Elementary Education
  - Elementary Curriculum and Instruction
- Physical Education
  - Analysis of Human Motions
  - Professional Leadership
- Secondary Education and Foundations
  - Secondary Curriculum and Instruction

Master of Arts

- Anthropology and Archaeology
  - Historic Archaeology
  - Prehistoric Archaeology
- Art and Design
  - Design
  - Painting and Sculpture
- Asian Studies

- Chemistry
  - Chemistry Teaching Emphasis
- Classics
  - Greek
  - Latin
  - Latin Teaching Emphasis
- Communications
  - Communications
  - Speech Communication
- Educational Psychology
  - Communicative Disorders
  - Counseling and Guidance
  - Educational Psychology
  - Instructional Media
  - School Psychology (interdepartmental)
  - Special Education
- Elementary Education
  - Elementary Curriculum and Instruction
  - Reading Specialist
- English
  - American Literature
  - English Language
  - English Literature
- French and Italian
  - French Language
  - French Literature
  - French Teaching Emphasis
- Geology
  - Earth Science Teaching Emphasis
- Germanic Languages
  - German Language
  - German Literature
  - German Teaching Emphasis
- History
  - Asia (with Asian Studies)
  - American History
  - Modern European History
  - Latin America (with Latin American Studies)
  - History Teaching Emphasis
- Humanities and Comparative Literature
  - Comparative Literature
  - Humanities
- Latin American Studies
- Linguistics
  - Applied Linguistics
  - Teaching English as a Second Language (TESL)
  - Theoretical Linguistics
- Mathematics
  - Mathematics
  - Mathematics Education
- Music
  - Music Education
  - Musicology
  - Music Theory/Composition
- Organizational Behavior
- Physical Education
  - Dance
  - Professional Leadership
- Physics and Astronomy
  - Physics Teaching Emphasis
- Political Science
- Recreation Education
  - Community School Leadership
  - Municipal Recreation Administration
  - Outdoor Recreation
  - Therapeutic Recreation
- Spanish and Portuguese
  - Portuguese Language
  - Portuguese Literature
  - Spanish Language
  - Spanish Literature
  - Spanish Teaching Emphasis
- Theatre and Cinematic Arts
  - Dramatic Arts

Master of Science

- Agriculture
  - Agribusiness
  - Agronomy
  - Animal Science
  - Horticulture
- Botany and Range Science
  - Biological Science Education
  - Botany
  - Genetics
  - Range Science
- Business Education
  - Distributive Education
  - Office Education
- Chemical Engineering Science
  - Combustion
  - Environmental Control
  - Fluid Mechanics (with Mechanical Engineering)
  - Nuclear Engineering (with Physics)
  - Thermodynamics
- Chemistry
  - Analytical-Physical Chemistry
  - Biochemistry
  - Inorganic Chemistry
  - Organic Chemistry
  - Physical Chemistry
- Child Development and Family Relationships
  - Child Development
  - Family Relationships
  - Marriage and Family Counseling
- Civil Engineering Science
  - Highway Engineering
  - Water Resources and Environmental Engineering
  - Structures and Structural Mechanics
- Computer Science
  - Information Systems
  - Formal Languages and Automata Theory
  - Machine Organization
  - Programming Systems
  - Theory of Computation
- Economics
- Educational Psychology
  - Clinical Audiology
  - Speech Science
- Electrical Engineering Science
  - Communications Engineering
  - Computer Engineering
  - Power Engineering
  - Solid-State Electronics
- Food Science and Nutrition
- Geography
  - Cartography
  - General Geography
  - Urban and Regional Planning
- Geology
  - Economic Geology
  - Mineralogy, Geochemistry, and Petrology
  - Paleontology
  - Stratigraphy and Sedimentation
  - Structural and Field Geology
- Health Sciences
  - Community Health
  - Health Education
  - Safety Education
- Home Economics Education
- Industrial Education
  - Technical Education
  - Technology
- Mathematics
- Mechanical Engineering Science
  - Applied Mechanics
  - Machine Design
  - Manufacturing
  - Nuclear Engineering (with Physics)
  - Thermosciences
- Microbiology
  - Genetics
  - Medical Technology
  - Microbiology
- Physical Education
  - Analysis of Human Motion
  - Professional Leadership
- Physics and Astronomy
  - Acoustics
  - Astrophysics

  - Atomic Physics and Spectroscopy
  - Biophysics
  - Nuclear Physics
  - Planetary and Space Physics
  - Plasma Physics
  - Solid-State Physics
  - Theoretical Physics
- Psychology
  - School Psychology (interdepartmental)
- Sociology
  - General Sociology
- Statistics
  - Applied Statistics
  - Theoretical Statistics
- Zoology
  - Biological Science Education
  - Entomology
  - Genetics
  - Zoology

Master of Accountancy

- Accounting

Master of Business Administration

- Business Administration

Master of Communicative Disorders

- Educational Psychology
  - Communicative Disorders

Master of Education

- Educational Administration
  - Community School Administration
  - Elementary School Administration
  - Secondary School Administration
- Educational Psychology
  - Counseling and Guidance
  - Educational Psychology
  - Instructional Media
  - School Psychology (interdepartmental)
  - Special Education
- Elementary Education
  - Elementary Curriculum and Instruction
  - Reading Specialist
- Secondary Education and Foundations
  - Comparative and International Education
  - Secondary Curriculum and Instruction

Master of Fine Arts

- Art and Design
  - Design
  - Painting and Sculpture

Master of Engineering

- Chemical Engineering Science
  - Combustion
  - Environmental Control
  - Fluid Mechanics (with Mechanical Engineering)
  - Nuclear Engineering (with Physics)
  - Thermodynamics
- Civil Engineering Science
  - Highway Engineering
  - Water Resources and Environmental Engineering
  - Structures and Structural Mechanics
- Electrical Engineering Science
  - Communications Engineering
  - Computer Engineering
  - Nuclear Engineering
  - Solid-State Electronics
- Mechanical Engineering Science
  - Applied Mechanics
  - Machine Design
  - Manufacturing
  - Nuclear Engineering (with Physics)
  - Thermosciences

Master of Health Education

- Health Sciences
  - Community Health
  - Health Education
  - Safety Education

Master of Industrial Education

- Industrial Education

Master of Library Science

- Graduate Department of Library and Information Sciences
  - Library Science

Master of Music

- Music
  - Performance

Master of Nursing

- Nursing
  - Cardiovascular Nursing Specialist
  - Family Nurse Practitioner
  - Neurological Nursing Specialist
  - Oncological Nursing Specialist

Master of Public Administration

- Institute of Government Service
  - Government Service

Master of Recreation Education

- Recreation Education
  - Community School Leadership
  - Municipal Recreation Administration
  - Outdoor Recreation
  - Therapeutic Recreation

Minors are offered in the fields listed above in addition to the following fields:

- Ancient Scripture
- Art History
- Basic Chemistry
- Business Management
- Church History and Doctrine
- Philosophy
- Scandinavian Studies

Certificate Programs Offered

Educational Specialist

- Educational Administration
  - Community School Administration
  - Public School Administration
  - Supervision
- Educational Psychology
  - Counseling and Guidance
  - Special Education
- Elementary Education
  - Elementary Curriculum and Instruction
  - Reading Specialist
- Secondary Education and Foundations
  - Secondary Curriculum and Instruction

Teaching English as a Second Language (TESL)

- Linguistics
  - French
  - German
  - Portuguese
  - Spanish

The Law School

The J. Reuben Clark Law School offers a six-semester course of graduate professional study leading to the Juris Doctor (J.D.) degree. Information regarding the program of legal education, admissions standards, and related matters may be obtained from the **Law School Bulletin** which is available through the Office of the Dean of the Law School.

To be admitted to the Law School, a student must be a college graduate who has excelled academically and has scored in the upper range of the nationally administered Law School Admission Test. In addition, an applicant must meet the general requirements for admission to the University, including compliance with the personal standards required of all students.

Application for admission must be made on forms provided by the Law School, which must be filed prior to March 15 preceding the fall in which a student expects to enroll in the Law School. Enrollment takes place only in the fall of each year.

For information regarding prelegal education, consult the section of this catalog entitled Preprofessional Programs—Prelaw.

Colleges

Each of Brigham Young University's thirteen colleges is an undergraduate college that offers work for the bachelor's degree only. All work beyond the bachelor's degree, in every department, is under the direction of the dean of the Graduate School.

College of Biological and Agricultural Sciences

A. Lester Allen, Dean (301 WIDB)

The following departments are included within the College of Biological and Agricultural Sciences:

Agricultural Economics
Agronomy and Horticulture
Animal Science
Biological and Agricultural Education
Botany and Range Science
Food Science and Nutrition*
Microbiology
Zoology

*Students who major in food science and nutrition may register in either this college or the College of Family Living.

College Advisement Center

Audi Megerian, Supervisor (392-393 WIDB)

The college advisement center (CAC) is designed to help students with any academic need and to assist them to successfully progress from the day of orientation through graduation as smoothly as possible. Students are encouraged to freely use the academic services of the center.

Biological and Agricultural Education

This area correlates programs in preprofessional advisement and in curriculum development within the college.

Division of Biological Sciences

Included in the Division of Biological Sciences are the Departments of Microbiology, Botany and Range Science, and Zoology.

Courses offered in these departments enable students to obtain a general understanding of the fundamental principles of plant and animal life and the relationships of man to the world in which he lives. Specialized courses are offered in the several branches of biological science for those students who wish to major in one of these fields. Preparation for teaching and research is emphasized.

Students interested in medicine, veterinary medicine, dentistry, dental hygiene, optometry, pharmacy, or forestry may obtain their preprofessional training in the Division of Biological Sciences.

Preforestry Course

Adviser: Benjamin Wood

Students may prepare themselves for training in forestry by taking the preforestry curriculum during their first two years of college work under the supervision of the Department of Botany and Range Science. Upon completion of this preforestry program they may enroll in a professional forestry school for their major work.

Students should consult the faculty adviser of the preforestry curriculum for detailed information and for assistance in developing their class schedules for registration.

Preprofessional Health

Adviser: Elda Banner.

Students interested in training for the health professions should consult the Preprofessional Programs section of this catalog. A preprofessional office (391 WIDB) is available for advisement in dental hygiene, dentistry, medicine, optometry, osteopathy, pharmacy, podiatry and other health professions.

Division of Agricultural Sciences

Included in the Division of Agricultural Sciences are the departments of Agricultural Economics, Agronomy and Horticulture, Animal Science, and Range Science.

Agriculture has always been America's basic industry and is more important today than ever. The agricultural industry has developed rapidly in mechanization and efficiency of production. The men and women engaged in agricultural research, production, and marketing must therefore have an understanding of new scientific and technological developments. They must also have a solid foundation in the basic sciences.

All students interested in agriculture will be given an opportunity to obtain a broad understanding of its various phases. Some may want the two-year technical program; others may specialize by taking a four-year major in one of the departmental curricula that will prepare them for farm and ranch management, employment in related agricultural business or government, or for teaching and research. For certain kinds of work it will be necessary to place strong emphasis on preparation in the basic sciences and on graduate study for an advanced degree.

Preveterinary Curriculum

Adviser: Keith H. Hoopes

Students planning to enter veterinary school may take their preveterinary training at Brigham Young University. These students should register with and obtain advisement from the preveterinary adviser in the Department of Animal Science.

Certain entrance requirements are common to all of the veterinary schools in the United States. The courses listed below are designed merely as a guide to help the student fill these basic requirements. The student is advised to familiarize himself with the specific entrance requirements of the veterinary schools in which he is interested. In connection with his preveterinary curriculum, the student is strongly urged to work toward a bachelor's degree, including course work in animal science and the basic sciences. A bachelor's degree intensifies the student's ability to understand the principles of veterinary medicine and provides an alternative should the student fail to enter veterinary school. Competition for admission to veterinary school is very keen.

The following courses are included in the entrance requirements of most veterinary schools: An. Sci. 121, 153, 207; Chem. 105, 106, 351, 352, 353, 481; Math. 105, 106, 109; Micro. 321; Physics 105, 106, 107, 108 or 201, 202; Zool. 201, 202, 203. Attention also is called to the general University requirements for graduation.

College of Business

Bryce B. Orton, Acting Dean (154 JKB)

Students may graduate with a major in one of the following departments in the College of Business: Accounting, Business Education, Business Management, Economics, and Statistics.

Objectives of the College of Business

The primary purpose of the College of Business is to assist the student in achieving success in business, government service, professional education, or graduate study. Programs within the college are designed to provide learning experiences to help the student acquire knowledge, insight, maturity, competence, and a sense of business ethics.

The student is expected to develop competence in the following abilities:

1. Using quantitative tools and scientific methods in analyzing the problems and policies of the economy and the individual business firm
2. Writing and speaking effectively
3. Working with people to achieve individual and organizational objectives
4. Using sound analysis and perceptive interpretation of economic and social forces
5. Thinking logically and analytically
6. Making sound decisions

Related to the above skills is the common body of knowledge in business and administration that baccalaureate programs in the college are designed to provide. The college is accredited by the American Assembly of Collegiate Schools of Business (AACSB), which requires a common body of knowledge in the following areas:

1. A background of the concepts, processes, and institutions in the production and marketing of goods and/or services and the financing of the business enterprise or other forms of organization
2. A background of the economic and legal environment as it pertains to profit and/or nonprofit organizations along with consideration of the social and political influences as they affect such organizations
3. A basic understanding of the concepts and applications of accounting, of quantitative methods, and information systems
4. A study of organization theory, behavior, and interpersonal communications
5. A study of administrative processes under conditions of uncertainty, including integrating analysis and policy determination at the overall management level

Each department in the college determines the courses its majors should take to satisfy the AACSB common-body-of-knowledge requirements.

Recommended High School Preparation

Because of the increasing use of mathematics and communications in business, a student who plans to enroll in the College of Business and who wants to complete the prescribed curricula without loss of time should preferably have successfully completed the following high school courses or their equivalent:

3 units of English
3 units of mathematics, consisting of 2 units of algebra and 1 of geometry

Students who have not completed the mathematics suggested above in high school will be required to remedy the deficiency before registering for Math. 110R.

General Education Requirements

The College of Business encourages students to take courses that fulfill general education requirements and at the same time fulfill major requirements within a particular department. Listed below are the courses that the college recommends in satisfying both University and college requirements:

Engl. 215
Stat. 221 (fills 3 hours of the physical science requirement)
Econ. 110 (fills 3 hours of the social science requirement)
Math. 110R (fills 3 hours of the mathematics, statistics and logic requirement)
Comput. Sci. 133A (fills 2 hours of the mathematics, statistics, and logic requirement)

Major requirements are found under the individual department headings in the List of Courses section.

Division of Business Fundamentals and College Core Requirements in Four-Year Degree Programs

All students who plan to complete a baccalaureate-degree program in the College of Business must register as majors in the Division of Business Fundamentals (Department Code 210) until they have completed specific course and grade-point requirements as specified by each department within the college. Consult the List of Courses section and the department in question for details of the department's business fundamentals requirements. Further information can be obtained from the College of Business Advisement Center in 49 JKB.

Two-Year Secretarial Program

A two-year secretarial program leading to an associate degree is offered in the Business Education Department. Upon completion of this program, a student may easily transfer to one of the four-year programs in the department that leads to a baccalaureate degree. A description of the requirements is contained under Business Education in the List of Courses section.

Two-Year Data Processing Program

A two-year data processing program leading to an associate degree is offered in the Business Education Department. The program is designed to prepare an individual to work in the business community as a unit-record equipment operator, a computer operator, or a programmer with special emphasis on programming for business applications. In addition, supervisory jobs are available at each of these levels. The program combines training in computer science with mathematics, accounting, and business education. The course work terminates with a two-year associate degree; however, the program is designed for easy transfer to a four-year administrative office management program in the Business Education Department. A description of the requirements is contained under Business Education in the List of Courses section.

Graduate Programs

Graduate programs are also offered through the Graduate School by departments of the College of Business. Degrees offered are—

The Master of Accountancy (M.Acc.),
The Master of Arts in Organizational Behavior (M.A.),
The Master of Business Administration (MBA),
The Master of Science in Business Education (M.S.),
The Master of Science in Economics (M.S.), and
The Doctor of Education in Business Education (Ed.D).

Students who contemplate entering one of these graduate programs should consult with the department chairman prior to registering for upper-division classes in the undergraduate program.

The program leading to the Master of Business Administration (MBA) is designed primarily for qualified students whose undergraduate majors are in areas other than business management. Students who graduate from Brigham Young University with a bachelor's degree in business management are not generally admitted to the MBA program at Brigham Young University. Students who contemplate an MBA degree should consider an undergraduate program that is related to functional areas in business, including computer science, accounting, engineering, etc. The director of the MBA program may be contacted for further information.

College of Education

Curtis N. VanAlfen, Dean (118 MCKB)

The College of Education has as its principal function the education of teachers, counselors, school psychologists, school librarians, principals, supervisors, superintendents, and other professional workers in education.

The College of Education has four departments:

Elementary Education
Secondary Education and Foundations
Educational Administration
Educational Psychology

Responsibility for the Preparation of Teachers

All certificates for teaching, counseling, school psychology, instructional media, supervising, administration, special education, and library work in the public schools of Utah are granted by the State Department of Public Instruction.

When all requirements for state certification have been fulfilled, students of the University registered in any of its colleges or in the Graduate School will be recommended for certification by the dean of the College of Education, who gives final approval on all aspects of the teacher education program, including matters pertaining to general education, professional education, and teaching majors and minors.

Students desiring state certificates should make application with the dean of the College of Education through the Teacher Certification Office, and not with the State Department of Public Instruction.

Elementary School Teaching. Students interested in elementary school teaching should register in the College of Education immediately. The program is largely prescribed from the beginning of the freshman year, prior application and acceptance being required for admittance to the beginning course in the educational sequence (Ed. 200). Late entrance into the college may delay graduation and certification. For course listings and prerequisites see the Department of Elementary Education section of this catalog. A dual certification program is cosponsored in cooperation with the following departments: Special Education, CDFR—early childhood endorsement minor (preschool and kindergarten), and Speech and Dramatic Arts (communicative habilitation). Students desiring to obtain a second certificate from any one of the above should register with that department as a major.

Secondary School Teaching. Students planning a career in secondary school teaching should register in the department of their academic major. Those choosing a composite teaching major should consult with the Teacher Clearance Office concerning their area of registration. There is no major in secondary education per se, but students must complete the professional education requirements as well as the academic major and minor. For course listings and prerequisites in this area, see the Department of Secondary Education and Foundations section of this catalog.

Special Education. Students interested in teaching or serving as resource teachers to students with intellectual handicaps, emotional disturbances, visual disabilities, or learning disabilities and communicative disorders should plan their programs with the coordinator of special education during the freshman year. Individuals who certify in these specialized areas are advised to obtain regular elementary or secondary teaching certificates. Early planning will enable the student to complete requirements for basic professional certification in special education along with his regular four-year program. Formal application and acceptance in this program is necessary. Further information may be obtained from the Institute of Special Education. A composite major is sponsored by Special Education and Elementary Education.

The area of communicative disorders emerged from speech therapy and pathology. It prepares students for employment as communication specialists in schools, hospitals, rehabilitation centers, and other agencies and in private practice. Students deal with the diagnosis, prescriptive planning, and habilitation of communicative disorders, including problems in speaking, listening, reading, and writing that may be associated with dysfunctions of sensation, perception, and conceptualization. Professional certification in Utah and many other states, as well as in the American Speech and Hearing Association, may be obtained with a master's degree.

Indian Education. Students interested in teaching Indian children are encouraged to enter either the elementary or secondary teaching certification programs. While students are completing these programs, they may take certain Indian education courses to enhance teaching competency. As each student applies for an additional student-teaching experience, he indicates his desire for a teaching assignment in a public school and with Indian students. For further information, contact the College of Education or the American Indian Education Department.

Community College Teaching. The College of Education provides appropriate training for graduate students who are interested in community college teaching. Students who are registered with the Graduate School in a program leading to a master's degree in an academic subject area may complete the requirements for a community college teaching credential by enrolling in professional education courses offered in the graduate program.

Curriculum and Instruction. Qualified students seeking specialization in the areas of curriculum and instruction may pursue work leading to the Master of Arts, the Master of Education, or the Doctor of Education degrees. The requirements of these programs are found in the **Graduate School Catalog.**

Counseling and Guidance. Certification as a school counselor in Utah requires approximately one year of graduate work in counseling and guidance plus two years of successful teaching experience.

School Psychology. The Department of Educational Psychology and the Psychology Department jointly offer a program leading to state certification as a school psychologist. This program requires a master's degree and ordinarily takes two years beyond the bachelor's degree to complete. Certification in Utah requires a valid teaching certificate. At least a year of teaching experience at either the elementary or secondary level is also highly recommended.

Public School Administration. Certification as a public school administrator in Utah requires a minimum of three years of successful teaching experience and the master's degree. The courses listed in the departmental brochure enable the candidate to obtain the appropriate administrative endorsements.

How to Proceed

Those in composite programs consisting of minors in three fields should register in the College of Education. All others will register in the colleges in which they are majoring. **Every candidate for a secondary teacher's certificate, regardless of the college in which he has registered, must have his certification program approved in the Teacher Clearance Office, 131 MCKB, before he enters Ed. 301, the first course in the professional education sequence.**

All students in the teacher certification program will be required to meet minimum standards in speech and hearing. Speech and hearing tests may be given as part of the course requirements in the first course in the certification cycle.

How to Become Certified. A student who completes the certification requirements set forth by the College of Education, regardless of the college in which he is registered, is eligible for a certificate issued by the Utah State Board of Education. Certification is approved by that board after the student has applied for certification through the dean of the College of Education who, in turn, recommends the student to the state board.

Students will be held responsible for certification requirements as outlined in the catalog in effect during the year in which they were admitted to the education program. A student may prepare himself to be certified in any of the following areas:

Teacher in early childhood (preschool to grade 3)
Teacher in elementary schools
Teacher of special education
Teacher in secondary schools
Teacher of industrial arts in secondary schools
Teacher of vocational homemaking in secondary schools
Teacher of unit shops in industrial arts
Librarian in secondary schools
Counselor
School psychologist
Instructional-media specialist
Administrator-supervisor in elementary schools
Administrator-supervisor in secondary schools
Superintendent

Certification in Other States. Students planning to teach in states other than Utah should check with the Teacher Clearance Office, 131 MCKB, for the special requirements of those states.

Basic Professional Certificate. Certification of teachers is a function of the Utah State Board of Education. The Board of Education publishes requirements for certification in booklet form and in supplements. The present policy of the board is one of stating minimum requirements in general terms. This is done to encourage the institutions that prepare teachers to engage in continuous study of the requirements, going beyond the minima in whatever ways seem desirable. While the board is always able to certify a candidate without recommendation from a university, it chooses to require the recommendation of the dean of the College of Education in each institution.

Alterations in the requirements may be made from time to time. They will not be retroactive but may apply to uncompleted portions of a student's program.

Requirements for Dual Certification. An individual who has met the requirements for a general elementary school certificate may obtain a general secondary school certificate by meeting certain additional requirements. The state's requirements for subject-matter major, minor, or composite teaching major must be completed. In addition, the individual must complete certain courses in methods of teaching and in student teaching at the secondary school level. An individual who has met the requirements for a general secondary school certificate may obtain a general elementary school certificate by completing certain courses in methods of teaching and in student teaching at the elementary school level. Specific instructions for these programs are available in the Teacher Clearance Office, 131 MCKB.

Selection of Candidates. Candidates for certification as teachers should expect to be screened carefully. Only individuals of high caliber who have acquired a substantial general education, whose mastery of their major and minor fields is unquestioned, and whose personal character reflects the best ideals of our culture will finally be recommended for certification.

The selection of those who will be finally recommended for certification is a continuous process. It begins when the student first announces his intention of seeking certification, and continues through all stages of his education. One basic requirement is that the student maintain a BYU cumulative grade-point average and a semester grade-point average of 2.25 or higher. (Elementary education requires 2.50.)

Transfer Students. To transfer from another university to the College of Education at Brigham Young University, the student must have a cumulative grade-point average of 2.25 or higher. (Elementary Education requires 2.5.)

Students tranferring to the College of Education from another college within Brigham Young University must have a BYU cumulative grade-point average of 2.25 or higher. (Elementary Education requires 2.5.)

College of Engineering Sciences and Technology

Armin J. Hill, Dean (270 ESTB)

The College of Engineering Sciences and Technology is composed of six departments:

Chemical Engineering Science
Civil Engineering Science
Electrical Engineering Science
Mechanical Engineering Science
Industrial Education
Technology

The alignment of engineering with technology and industrial education makes it possible to offer, in a single college, a broad spectrum of training within which anyone interested in preparing for a career in our challenging technological world can find opportunity to utilize his interests and capabilities. This rich offering encompasses two-year associate-degree programs, four-year baccalaureate-degree programs, five-year programs leading to the Master of Science, Master of Engineering, and Master of Industrial Education, and a program jointly administered by the engineering departments leading to the Doctor of Philosophy degree.

The deed of trust executed by Brigham Young which officially established this University (then Academy) in 1875 expressly set forth that "each of the boys who shall take a full course, if his physical ability will permit, shall be taught some branch of mechanism that shall be suitable to his task and capacity." "Mechanic Arts," as this type of instruction originally was called, later became known as "industrial arts" and emphasis was given to the type of education needed to teach these arts. Our present programs in industrial education, technician training, technology, and engineering have all developed directly from these earlier offerings.

College Advisement Center

The advisement center provides information and assistance on registration, requirements for graduation, policies and procedures, fields of study, changes of major, up-to-date records, and many other aspects of the academic life of the college. The center is a "center for students" and as such offers help to any student who seeks it.

Work While You Learn

The value of actual on-the-job working experience cannot be overemphasized. When obtained during the learning process, it adds materially to understanding and incentive. It also has a by-product of assisting with educational expenses. Several kinds of work experiences are available. With the flexibility of the 4-4-2-2 trimester schedule, the possibilities have been increased severalfold. The simplest arrangement, perhaps, is finding technical employment during the summer. Departments and the Placement Center work together to assist the student in finding suitable employment. We also have arrangements with several companies for "co-op" placement, wherein the student works in industry for a period of time and then returns to school for a period, sometimes alternating work and learning experiences several times.

Students interested in work-while-you-learn experiences should contact their major department chairman or the cooperative education coordinator in the dean's office.

Industrial Education

The Department of Industrial Education provides baccalaureate programs for training industrial arts teachers for elementary, junior high and senior high schools and technical education teachers for vocational and technical schools. This department also offers master's degree graduate programs for advanced preparation of supervisors, coordinators, and administrators in industrial and technical education. In cooperation with the College of Education, the Department of Industrial Education offers the Doctor of Education degree. It is available with minor emphasis in industrial education.

Technology

The Department of Technology offers four-year baccalaureate programs in building construction, physical plant administration, design and graphics, electronics, and manufacturing. The latter three programs are accredited as engineering technology programs by the Engineer's Council for Professional Development (ECPD) and generally have been recognized as some of the best available in their respective fields. This department also offers two-year associate degrees for technicians in data processing, drafting, electricity, electronics, graphic arts, light building construction, materials science, and welding.

Engineering Sciences

Engineering having a strong emphasis on mathematics and the basic sciences has been offered at Brigham Young University since 1952. Graduates have found ready acceptance in the better graduate schools and in the most selective of industries. Many are already in top positions in leading industrial companies or have important assignments with government agencies. During the recent softening of engineering employment, our graduates had little difficulty finding good jobs. With the evident need well into the future for those skilled in solving technological problems, a degree in engineering from Brigham Young University is sure to prove a valuable accomplishment.

To complete the prescribed criteria without loss of time, students planning to enroll in engineering should have successfully completed the following high school courses or their equivalents:

- 3 units of English
- 4 units of mathematics, consisting of 2½ units of algebra, 1 unit of geometry, and ½ unit of trigonometry. This should qualify the student to commence mathematics with analytic geometry and calculus
- 1 unit of physical science (either chemistry or physics)
- 1 unit of drafting or mechanical drawing

Students who have not completed these requirements are strongly advised to plan to enter Brigham Young University for the **Summer Term**, beginning in June. If deficiencies are not too serious, they can probably be made up by the Fall Semester.

Each of the four engineering departments (chemical, civil, electrical, and mechanical) offers a four-year curriculum leading to the Bachelor of Science degree. Each of these is accredited by the Engineers' Council for Professional Development (ECPD). A four-year curriculum leading to the degree of Bachelor of Science in Geological Engineering is offered in the Department of Geology.

The Master of Science and Master of Engineering degrees are also available after completion of approximately one year of work beyond the requirements for the baccalaureate degree. A thesis is required for the Master of Science degree, which is designed particularly for those who are interested in going into research work or who plan to go on for a doctoral degree. The Master of Engineering degree requires about the same amount of time but calls for an engineering study or project instead of a thesis.

A Ph.D. degree is also available in engineering. This is administered by an interdepartmental committee so as to afford the student maximum flexibility in the arrangement of his program.

All of these programs can be completed in approximately one-fourth less total time by taking advantage of the Spring and Summer terms. Most departments have shown in their curricular outlines how this may be done.

MS-3, and M.Eng.-3 Programs

Specially scheduled programs are available to students who, before commencing their junior year, decide to obtain a master's degree. These "Master-3" programs integrate the work of the junior, senior, and graduate years into one program that has much better continuity than is possible if all requirements for the bachelor's degree had to be met by the end of the senior year. It is possible in these programs to obtain a much better foundation in mathematics, for example, before taking the more advanced courses, which gives the student the benefit of better preparation.

These integrated programs are available leading to the Master of Science or Master of Engineering degrees in chemical, civil, electrical, or mechanical engineering.

To enter one of these programs a student should immediately upon completion of his second year (4 semesters)—certainly no later than the completion of his third year (6 semesters)—make application through his department chairman, setting forth on a form (which will be provided) the detailed plan of his program through to the completion of the requirements for his master's degree. This program will be approved by his chairman, his undergraduate dean, and the dean of the Graduate School. As the student commences his final year of work (the last 30 semester hours), he will apply for admission to graduate school and, if qualified, will be formally admitted. Upon completion of all requirements for his baccalaureate degree, he will receive that degree whether or not he completes his master's requirements at the same time. He may receive both degrees simultaneously.

Nuclear Engineering Options

With the construction of increasingly large numbers of nuclear power plants in this country and abroad, there is a rapidly growing demand for engineers and applied scientists who have a special understanding of nuclear processes. We have therefore developed options with a nuclear emphasis so that at the undergraduate level a student may either complete the nuclear power option leading to the B.S. degree in applied physics or he may complete a 9-15 credit hour nuclear-engineering option in the chemical, electrical, or mechanical engineering departments. A 9 credit-hour minor in nuclear engineering is also available at the graduate level. Courses to be taken for these options are indicated in the departmental sections.

Prearchitectural Curriculum

A student interested in architecture may take up to three or four years of generally required basic courses, including foundation courses in drafting, graphics, communications, and design, which are necessary to his training and normally will be accepted by any accredited school of architecture. He may plan to take one year of his work at BYU and then transfer to a school of architecture for not fewer than four additional years of work leading to a Bachelor of Arts degree in architecture, or he may remain at BYU for at least three years and complete work for a Master of Arts degree in an additional three years. He may find it worthwhile to earn a B.S. or a B.A. degree before transferring.

The prearchitectural program is administered in the Department of Civil Engineering, and further details will be found in that section of this catalog.

Two-year Technician Programs

Because of the increasing complexity of industrial operations, more and more students who have completed two years of study find fruitful and satisfying employment. The Departments of Chemical Engineering and Civil Engineering now have curricula leading to the associate degree upon completion of approximately two years (four semesters) of work. Those interested in such programs should contact their major department chairman. In addition, the following programs are offered through the Department of Technology:

Drafting Technician
Electrical Technician
Electronics Technician
Graphic Arts Technician
Light Building Construction Technician
Materials Science Technician
Welding Technician

Requirements for Graduate Students

Each graduate student must meet all of the requirements for advanced degrees as outlined by the Graduate School and as set forth in the **Graduate School Catalog.** The responsibility for knowing and fulfilling these requirements rests with the student.

College of Family Living

Blaine R. Porter, Dean (1206 SFLC)

The following departments are in the College of Family Living:

Child Development and Family Relationships
Clothing and Textiles
Family Economics and Home Management
Family Studies
Food Science and Nutrition
Home Economics Education
Interior Environment

The Baccalaureate Degree

The College of Family Living contributes to the total University community by offering courses designed to develop insight into and understanding about various aspects of family life. Many of the colleges of the University contribute to the curricula in the College of Family Living by providing majors with background in the arts, the humanities, and the social, physical, and biological sciences. The four-year program in family living, therefore, provides a broad liberal education together with preparation for one of a number of professional specialties.

Because much work that was at one time confined to the home has moved out into the community, highly specialized, professional services are becoming available to all homes and families. Areas of specialization within the college include child development, clothing and textiles, dietetics, early childhood education, interior design, family economics, family relationships, food science and nutrition, home economics education, and home management. Students may continue in these specialties through the baccalaureate to advanced degrees.

Specific requirements for each major offered in the College of Family Living are described in detail in each departmental section.

Assistance in planning programs may be obtained through the College of Family Living Advisement Center, 206 SFLC, and/or through the respective department chairman.

The Associate Degree

Supervisor: Marjan Martin

The associate degree offered through the College of Family Living has two options for students who wish to become more proficient in homemaking and family relationships and at the same time develop abilities and skills that can be put to use occupationally.

The Associate Degree in Family Living provides a broad based program with courses selected from the various departments within the college. The Associate Degree in Child Development offers specific training in dealing with children and with parent education and meets the standard of the national program of Associate in Child Development. Both of these options lend themselves to planning so that a student may transfer to a four-year program leading to a baccalaureate degree in the College of Family Living.

For specific requirements, please consult the College of Family Living Advisement Center, 206 SFLC.

Graduate Study

Attractive opportunities and a serious need for the contributions of highly trained professional people are encouraging outstanding students to pursue graduate studies. The College of Family Living provides curricula leading to the master's degree in child development, early childhood education, family life education, family relationships, food science and nutrition, marriage and family counseling, and home economics education. The doctor's degree is offered in child development and family relationships and in marriage and family counseling.

Students who have completed all requirements for the bachelor's degree and who wish to continue their studies are registered in the Graduate School and are under the jurisdiction of the dean of that school. To participate in one of the degree programs offered by the College of Family Living, the student must make application through the Graduate School specifically for degree-seeking status.

Professional and Honorary Organizations

Students at the advanced undergraduate and graduate levels are encouraged to take advantage of student membership in professional organizations such as the American Association of Marriage and Family Counselors, American Home Economics Association, American Dietetics Association, American Society of Interior Designers, National Council on Family Relations, etc.

Omicron Nu is a national honorary society that recognizes superior scholarship, aids in the development of qualities essential to leadership, and encourages research in the professional fields related to home and family living. Juniors, seniors, and graduate students of the college with high academic standing, ability in creative thinking, and potential leadership ability are eligible for election to membership.

College of Fine Arts and Communications

Lael J. Woodbury, Dean (A-410 HFAC)

The following departments are in the College of Fine Arts and Communications:

Art and Design
Communications
Music
Theatre and Cinematic Arts

The University has a long tradition of providing all students with a rich experience in fine arts and communications. Fifty percent of the entire student body take courses in the Harris Fine Arts Center each semester. In any one year more people attend the college arts events than all of the home football and basketball games combined. Student and faculty touring groups reach out to the entire Church and many foreign countries. In journalism, students who edit the **Daily Universe** and **Banyan** yearbook receive their direction and advisement from faculty members.

Programs leading to professional careers are offered in each department. The faculty includes men and women of the highest professional distinction and academic discipline. The college also brings to campus many artists, special lecturers, and practitioners directly from professional fields. The Harris Fine Arts Center provides five speech and drama theatres, two ideal concert halls, two magnificent art galleries, broadcast and journalistic laboratories, clinics, and practice rooms—plus an atmosphere of creative enterprise. All of these resources combine to help students establish competence in their chosen careers and build life values in their cultural pursuits.

College Advisement Program

Students receive help in planning for registration from three major sources:

1. This catalog outlines the basic requirements for graduation in the twenty-two areas of emphasis encompassed in the Departments of Art and Design,

Communications, Music, and Theatre and Cinematic Arts.

2. Students who need help in assessing their potential competence are assigned to faculty members within the departments for personal consultation. Here their skills and talents are explored, and in some cases prognostic tests are given to reveal potential success.
3. All students who register as majors in any of the college departments are urged to consult with the College Advisement Center, D-444 HFAC. Individual student records showing progress to date and courses needed to complete requirements are available for inspection by the student and academic advisers, who together plan a schedule for course completion.

Scholarships and Awards

Scholarships, awards, and grants-in-aid are available to qualified students in all departments of the College of Fine Arts and Communications. A number of these are reserved for high school graduates and transfer students qualified because of scholarship, outstanding skills, or leadership.

All scholarships and awards are under the jurisdiction of the University Scholarship Committee. Applications for such awards may be obtained from the chairman of this committee. Specific information regarding individual qualifications may be had from the chairman of the individual departments.

For information regarding scholarships, fellowships, and grants-in-aid for graduate study, see the **Graduate School Catalog.**

Department of Art and Design

The Department of Art and Design serves two main purposes: (a) the preparation of creative leaders in the various fields of the plastic and graphic arts and (b) the building of an appreciative audience for these arts.

Major programs are offered which lead to careers in art education, graphic design, industrial design, photography, painting, printmaking, sculpture, and ceramics. Four degrees are offered: the Bachelor of Arts, the Bachelor of Fine Arts, the Master of Arts, and the Master of Fine Arts. The Bachelor and Master of Fine Arts programs place an emphasis on performance and professional preparation.

The Master of Fine Arts degree is a two-year program offering specialties in ceramics, crafts, graphic design, industrial design, painting, printmaking and sculpture. After the student is admitted to these programs by a portfolio, he must complete a one-man show, a terminal-project show, and a scholarly report of his graduate art activities. A Master of Arts degree in art education also is offered.

A collection of more than seven thousand original works of art, by both American and European artists, is owned by the University. Frequently changing exhibitions of work by contemporary artists also contribute to general appreciation and to the instructional program. Exhibitions of students' work are held regularly for analysis and criticism and for furthering professional growth. The department sponsors special lectures, demonstrations, and trips to galleries as cultural enrichment activities.

Department of Communications

The principal objectives of the Department of Communications are to prepare qualified students for professional careers in the major areas of public and organizational communications and to help all students in the University gain greater understanding of the mass media and the interpersonal communications process.

The professional education program in communications offers specializations in the following areas leading to the Bachelor of Arts degree: advertising, broadcasting, journalism (newspaper, magazine and broadcast), photography (still and motion picture), and public relations. Graduate programs leading to the Master of Arts degree provide advanced courses and seminars in specialized areas of communications.

Classroom instruction is combined with laboratory work in real-life settings to prepare students for professional careers. Students publish the campus laboratory newspaper, the **Daily Universe**; they produce on-the-air programs and news shows on KBYU-TV and KBYU-FM; they plan advertising campaigns for actual commercial clients, grapple with corporate-image problems of industrial firms, and shoot and process film for newspaper readers and movie and TV viewers.

Qualified seniors and graduates gain supervised experience as interns on the staffs of selected newspapers, magazines, radio and television stations, and advertising and public relation firms.

The department sponsors a series of lectures on communications throughout the year to bring students in contact with leading professionals and scholars in the field of communications. Professional activities are also stimulated by student organizations in advertising, journalism, broadcasting, and public relations.

Department of Music

The main objectives of the Department of Music are to help each student attain through music the skills and proficiencies of an artist while he is gaining a broad general education; to develop talent to the highest degree possible; to train music teachers for their profession; and, through association with distinguished artists and teachers, to help all BYU students acquire discriminating taste and sound critical judgment.

The Bachelor of Arts degree is available with majors in music theory, music education, and music performance. The Bachelor of Music degree is available with a major in music performance, music pedagogy, music education, and composition. The master's and doctor's degrees may be taken in musicology, composition, music theory, music education, and music performance.

Every music major studies a certain amount of applied music in order to develop proficiency on his major instrument or in voice. Students who wish to become skilled performers in order to qualify themselves to assume positions in the concert or professional world should major in music performance; those who wish to become composers or arrangers should major in composition; those who desire to become music copyists or to teach theory of music should major in music theory, and students wishing to specialize in giving private lessons in a studio while developing excellent performance skills should major in music pedagogy.

Prospective school teachers have the opportunity to major in vocal or instrumental music. Each program is designed to emphasize the essential aspects of preparation for teaching in public schools. The master's degree program in elementary or secondary school music is designed to prepare teachers, supervisors, and music consultants who can help classroom instructors teach music effectively.

A cultural atmosphere seldom equaled is provided through concerts and recitals, including visiting groups and artists. The Department of Music sponsors more than 285 concerts and recitals each year, not including the lyceum program provided by student body activities and by the lyceum committee.

There is a musical organization for every student at BYU who is interested in singing or in playing a musical instrument.

Department of Theatre and Cinematic Arts

The Department of Theatre and Cinematic Arts offers programs leading to professional competency in acting, child drama, directing, playwriting, technical theatre (design, construction, and costuming), and education. Its physical facilities are unrivaled in America, and they permit an intensive production laboratory and experimental program that features 18 major productions and 125 one-act and experimental plays. The dramatic arts area also provides 3 major productions for the Promised Valley Playhouse in Salt Lake City, providing an excellent opportunity for students to perfect their theatrical skills.

Recently the department was highly honored in being chosen a fourth time by the American Educational Theatre Association and the USO to play at European military bases. The department operates a major theater, an arena theater, an experimental theater, and a television drama series, with the latest and most workable equipment to be found in any of the theaters of the United States. In addition, the department operates the "Whittlin' Whistlin' Brigade"—BYU Children's Theatre. This company performs on campus and at the Promised Valley Playhouse in Salt Lake City and tours throughout many regions of the Church.

The drama education program leads to secondary-teaching certification in the state of Utah. The objective of this program is to provide students with the skills, research, methods, and actual teaching experience needed to teach speech and drama units effectively on the high school level.

College of General Studies

C. Terry Warner, Dean (106 HGB)
Marion J. Bentley, Assistant Dean for General Education (370 BRMB)
Wm. Dale Goodson, Assistant to Dean (370 BRMB)

The College of General Studies consists of the following academic programs and departments, descriptions of which appear in the departmental List of Courses section:

Career Education Program
Honors Program
Indian Education
Philosophy
University Studies
Air Force ROTC
Army ROTC

In addition to these departments, the college includes three other agencies that have University-wide impact: the college advisement center, the University's general education program, and the University's tutoring service. These are described below.

With the exception of degree-seeking students in the Department of University Studies, each student enrolled in the college either has degree-seeking status in one of the other colleges or is preparing for such.

The college specializes in individualized advisement and academic support for its students; the techniques it employs for this purpose for Honors students, for Indian students, for general studies students without majors, for students on academic warning and probaion, end for ROTC cadets are among the most advanced and successful in the nation.

Advisement Center

Jerry L. Jensen, Supervisor (140 BRMB)

Records of all students in the college, excepting ROTC cadets, are housed in the college advisement center. These records are thoroughly evaluated prior to individual advisement appointments of students with faculty and staff in the several departments. Advisement visits are scheduled and followed up by the advisement center staff. Because of the center's management of the advisement operation, departments make maximally efficient use of faculty time in advising students. Thus, the center has a key role in the educational planning of all general studies students without majors, students admitted on academic warning or probation, honors students, and Indian students.

General Education Operations

Wayne R. Herlin, Coordinator (370 BRMB)

The College of General Studies is charged with leadership responsibilities in the University's program of thoroughgoing general education reform. General Education Operations is assigned operations management responsibilities in connection with this University-wide program.

Tutoring Service

Jerry L. Jensen, Coordinator (140 BRMB)

This service, performed by students approved by department chairmen to act as tutors, is available to all BYU students who need help beyond their regular classroom instruction.

A description of this service is found in the Student Services section.

College of Humanities

Bruce B. Clark, Dean (129 JKBA)
R. Max Rogers, Assistant Dean (113 JKBA)

The following departments and special programs are in the college of Humanities:

English
Asian and Slavic Languages
Classical, Biblical, and Middle Eastern Languages
French and Italian
Germanic Languages
Spanish and Portuguese
Humanities and Comparative Literature
Latin American Studies
Linguistics
Language Research Center
College Advisement Center

The College of Humanities was created on June 1, 1965, through a division of the former College of Humanities and Social Sciences, although the basic subject areas of literature and language taught in the college have been important areas of the University since its beginning.

Emphasis in the college is on the study of languages, both English and foreign, and on the cultures and the achievements in art and thought of the people who use these languages. In other words, the college is heavily involved in what is traditionally called "liberal" education, both for those who major or minor in the college and for those who are served by it through the general education program. In their ultimate goals, the humanities seek to discover, preserve, and disseminate the best of man's thoughts and creations.

There are three large purposes for which the instructional program of the College of Humanities has been designed. First is intensive training in the science of language, in English composition, and in basic comprehension of foreign languages for all students of the University. Second is the provision of a broad, liberal education through literature and other humanities courses designed to acquaint students with the values of today's complex civilization and to help them contribute to the best of those values. Third is the preparation of highly skilled, professional men and women—professionals deeply rooted in the humanities and able to fill positions of responsibility and leadership, especially as teachers, but also as educated leaders in many other areas.

Courses intended to contribute to the first two purposes are offered as a service to all BYU students. Career programs for those who choose to do their major work in this college are offered in each of the eight regular departments and the two interdisciplinary areas. Advisers in the College Advisement Center and in the departments are available to consult with students in the selection of programs that best fit their educational goals and at the same time contribute most effectively to their broad education and professional training. Degrees currently available in the College of Humanities are—

Doctor of Philosophy: English, French, German, Spanish
Master of Arts: American Literature, Classics, Comparative Literature, English Language, English Litera-

ture, French, German, Humanities, Latin-American Studies, Linguistics, Portuguese, Spanish, TESL
Bachelor of Arts: Chinese, Comparative Literature, English, French, German, Greek, Humanities, Italian, Japanese, Latin, Latin-American Studies, Portuguese, Russian, Spanish, Spanish-Speaking American Studies
Associate of Arts: Classical Civilization, Humanities

The college also is engaged in research, especially in the language-translation and intercultural programs of the Language Research Center, directed by James S. Taylor.

College of Nursing

Maxine J. Cope, Dean (2240-B SFLC)

A Career in Nursing

A nursing career offers a life that is rewarding and a future that is secure. Throughout the world, thousands of men and women are needed as nurses in hospitals, clinics, public health agencies, military services, comprehensive mental health centers, health missions, and in various kinds of practitioner roles.

Philosophy of the College

The philosophy of the College of Nursing is in harmony with that of Brigham Young University and with the educational opportunities offered by the college and the University. The following is the college statement of philosophy:

As children of God, created in his image, all men have intrinsic worth. The universe, as a creation of God, is for the use of man to magnify this worth: to develop his spiritual, intellectual, social, and physical potential. Respect for the dignity of man and for each person's right to shape his own destiny is basic to all human activities and interactions.

Students of nursing should have opportunities for self-realization and for preparation in occupational and community responsibilities according to individual needs, interests, aptitudes, and capacities. Since nursing encompasses a multitude of functions which require services of competent practitioners with varying levels of preparation, opportunity should be available for each nurse to receive recognition and achieve excellence within the framework of her preparation. Opportunity for progression from a technical base through professional level should be provided.

As an intelligent and compassionate being, the student nurse is motivated to explore and evaluate various aspects of the universe through the sciences, arts, and humanities, to develop cognitive and affective abilities, and to learn specialized psychomotor skills. During the process of learning, she experiences modified thinking, feelings, and patterns of behavior that can be measured at defined levels. She employs critical judgment in utilizing acquired knowledge, abilities, and skills to enhance the quality of life and to improve the health of people of all ages, races, and creeds according to their particular needs.

Life has meaning in relation to man's interaction with others; because of the nature of her education and expertise in establishing effective relationships, the nurse contributes to society in a meaningful way and forms an integral part of the culture in which she lives. Being cognizant both of the problems and changes occurring in the society and of the characteristics of the different cultures represented therein, the nurse is an effective agent in working with others to bring about desired changes in the delivery of heath care.

The Programs

To prepare nurses to meet many different employment opportunities, Brigham Young University College of Nursing offers a career mobility program consisting of three phases with multiple entrances and exits.

Phase I, Associate Degree. The A.D. graduate is prepared with liberal and technical education. She is able to plan, implement, and evaluate general nursing care in a variety of health-illness situations. Her sound scientific background provides a base for entering into the B.S. phase.

Phase II, Baccalaureate Degree. The B.S. graduate is prepared with scientific and professional education for primary care practice. She has the skills necessary for physical and psychological assessments which are needed to promote and provide professional nursing care. Utilizing leadership knowledge and skills, she influences change and brings about a higher level of health with the patient and his community.

Phase III, Master's Degree. The graduate program prepares professional nurses to become master clinicians in specialty areas such as cardiovascular, neurological, oncological, and family nursing. The basis of this program is to prepare for clinical leadership roles in episodic or distributive care settings. Teaching, supervising, and research experience are included.

Nurses prepared at the graduate level are in great demand as clinical specialists, researchers, faculty, and leaders. (See **Graduate School Catalog.**)

The graduates of either the A.D. or B.S. phases are eligible to take the State Board Test Pool examinations for licensure to practice as R.N.'s (registered nurses).

Graduates from all programs are eligible for membership in local, state, and national nursing associations.

Registered nurses seeking a bachelor's degree may enter the program at the level they qualify. Admission and placement are made on an individual basis.

General Behavioral Outcomes

1. Demonstrates through her relationships with others her recognition of the intrinsic worth, responsibilities, and rights of herself and others
2. Conceptualizes her personal and professional values and the cultural value systems and relates them to current social issues
3. In utilizing the nursing process, demonstrates an awareness of the uniqueness of the individual with spiritual, physical, psychological, and social needs
4. Has autonomy and skill in making independent discriminating judgments and in determining priorities for nursing intervention
5. Utilizes principles and concepts from nursing and related physical and humanistic sciences in providing nursing services to individuals, families, and groups in a variety of situations
6. Uses her knowledge of nursing and community resources to aid the patient and family to identify and meet their health needs and potential, recognizing the individual's right for self-determination in utilizing these services
7. Demonstrates a specified level of proficiency in professional and technical skills essential for implementation of the nursing process
8. Initiates and participates in programs promoting the health and welfare of society
9. Collaborates with members of the health team to promote health and to improve the delivery of health care
10. Initiates, promotes, and supports efforts to improve professional nursing standards and practice

Admission Policies and Criteria

Admission to Brigham Young University does not mean that a student will be admitted to the nursing program.

The following criteria and procedures have been established for admission to the College of Nursing's clinical program (Nurs. 106). To be considered for admission, students—

1. must be fully matriculated at BYU;
2. must have completed the required supporting courses (Chem. 102, Relig. 121, Zool. 260 and 261, Psych. 111) with a C grade or higher (a C- is not acceptable;
3. must have obtained an overall grade-point average of not less than 2.5;

4. must have personal characteristics and traits which enable them to function effectively in their course work and to relate effectively to others.

While students who meet the above criteria are eligible for consideration for admission, this does not necessarily mean they will be accepted into the program. Those who best meet the requirements (those with the highest grades) will be admitted first. A first consideration will also be given to those who intend to go on for a baccalaureate degree.

Students are responsible for informing the College Advisement Center when they are eligible for acceptance as well as the term they want to be admitted.

Campus Assignment

Students will be assigned to the Provo or Salt Lake campus. Special needs will be considered when possible. However, students should understand that their preference for a specific campus cannot always be granted. Assignments will be made in accordance with resources and facilities for a high-level educational program.

Transportation

It is necessary that a student have an automobile or have access to one. Some of the educational experiences (particularly in public health) are in various areas in the community. Also, it is necessary to make home visits to families.

Accreditation

The College of Nursing is accredited by the Utah State Board of Nursing. The baccalaureate program is accredited by the National League for Nursing.

College of Physical and Mathematical Sciences

Jae R. Ballif, Dean (270 ESC)

The College of Physical and Mathematical Sciences consists of six departments. There are also two special category designations—physical science and science fundamentals.

Chemistry
Computer Science
Geology
Mathematics
Physical Science
Physics and Astronomy
Science Fundamentals
Statistics

Physical Science. This category consists of courses that help prepare majors in this college for a teaching profession.

Science Fundamentals. This category has been established for those students who are unsure of a specific major but are interested in the physical and mathematical sciences. Such students should take fundamental courses in mathematics, physics, and chemistry during their first year while they evaluate their professional interests. Specific course information can be obtained by contacting the college advisement center, 271 ESC.

Required High School Preparation

To complete the prescribed curricula without loss of time, a student enrolling in the College of Physical and Mathematical Sciences will need to have completed successfully the following high school courses or their equivalents:

3 units of English
4 units of mathematics, consisting of two and one-half units of algebra, one unit of geometry, and one-half unit of trigonometry. This should be sufficient to qualify a student to commence college mathematics with analytic geometry and calculus.
1 unit of physical science, which should be either chemistry or physics.

Because mathematics provides the foundation for all work in the physical and mathematical sciences, particular attention is paid to the high school preparation in this subject. If his high school training is found to be deficient, an entering student will be required to take remedial work. He should recognize that the time required to complete his college program will probably be extended by the length of time necessary to make up these deficiencies.

To help determine which math course should be taken first, a student may write to the Mathematics Department, 292 TMCB, and request that a math placement test be sent to him.

A student who will not have completed all recommended courses by the time he graduates from high school may complete them through Home Study or other courses offered by Brigham Young University. High school seniors who have the time and ability may carry special courses which will be given college credit and which may be counted toward a baccalaureate degree. Information on any of these courses will be sent upon request.

Degrees Offered

Bachelor of Arts or Bachelor of Science degrees are offered in chemistry, chemistry teaching, computer science, earth science, geology, geological engineering, mathematics, physics and astronomy, and statistics. A bachelor of science degree in applied physics is offered as an option for those who wish to become familiar with reactor physics or nuclear engineering physics and is outlined in the physics and astronomy section of this catalog. No degree is offered in the physical science area. It provides courses for other degree programs only.

The Master of Science degree is offered in chemistry, computer science, geology, mathematics, physics, and statistics. The Master of Arts degree is available in chemistry and in physics. Programs leading to the Doctor of Philosophy degree are currently offered in chemistry, geology, and physics. All requirements for these advanced degrees are specified by the Graduate School and are found in the **Graduate School Catalog.**

Specially scheduled programs are available to students majoring in chemistry or physics who, before commencing their junior year, decide to obtain a master's degree. The MA-3 and MS-3 programs integrate the work of the junior, senior, and graduate years into one program which has better continuity than is possible if all requirements for the bachelor's degree must be met by the end of the senior year. For example, it is possible in these programs to obtain a much better foundation in mathematics before taking the more advanced courses. Arrangements can be made to award the bachelor's degree either simultaneously with the master's degree, or earlier if all requirements are completed.

College of Physical Education

Clayne R. Jensen, Dean (212 RB)
Donald D. Shaw, Assistant Dean (221-F RB)

The following departments and divisions are in the College of Physical Education:

Dance
Health Sciences
Intercollegiate Athletics
Physical Education—Men
Physical Education—Women
Recreation Education
Youth Leadership
Community-School Regional Center
Intramural and Extramural Sports

This college, unique among American universities, seeks to make three significant contributions: (1) provision of services to the students and faculty, (2) extension of University programs to the public, and (3) preparation of professional leaders. The college sponsors an extensive health education program, a variety of physical education activity courses, numerous intramural and extramural activities, supervised free play, and several activity clubs. High-quality intercollegiate athletic teams and dance performance groups are correlated with other programs of the college. Those majoring in one of the areas within the college find strong professional programs at both the undergraduate and graduate levels.

The LDS Church, through its beliefs and teachings, has developed a unique reputation relative to health practices—one of active and vigorous living, leadership of youth, and wholesome use of time. Brigham Young University, in harmony with the objectives of the Church, provides its members with opportunities for both participation and active, exemplary leadership.

The Department of Health Sciences offers study leading to associate, baccalaureate, and master's degrees. The Associate of Arts Degree in public health is interdisciplinary but is administered by the Health Science Department. The associate-degree program, with specialties in alcoholism, mental health, nutrition, or sanitation and public health, is designed especially for the Indian student; however, it is open to all students.

The Department of Health Sciences also offers a Bachelor of Science degree in health education (teaching degree) and in community health and environmental health (nonteaching degrees). Those completing the nonteaching degree may be employed by governmental or voluntary health agencies. The driver-and-safety-education minor qualifies a graduate to teach driver education in the public schools. The department offers graduate study leading to the Master of Health Education or Master of Science degrees. Also, this department offers the student body a quality health-education service program designed to develop attitudes and practices that contribute to quality living and perpetuate wholesomeness among Church members and the public in general.

The Intercollegiate Athletic Program for Men, which is affiliated with the Western Athletic Conference and the National Collegiate Athletic Association, sponsors teams in swimming, baseball, basketball, football, golf, gymnastics, tennis, track, cross-country, and wrestling. In addition to its contributions toward the image of the University, the morale of the student body and faculty, and enjoyment of the students, faculty, and public, the athletic program serves as a vital educational laboratory for capable young athletes. The program is designed to develop such characteristics as the ability to lead and direct, respect for discipline and authority, social and moral understanding, ability to act effectively under stress, self-discipline in the interest of accomplishment, and the determination to overcome obstacles. Individual and team competition promotes cooperation and sportsmanship, physiological fitness, and wholesome health practices.

The Intercollegiate Athletic Program for Women is under the jurisdiction of the Women's Physical Education Department. The program is affiliated with the Intermountain Association of Intercollegiate Athletics (IAIAW) and the national Association of Intercollegiate Athletics for Women (AIAW). The department sponsors teams in archery, badminton, basketball, field hockey, golf, gymnastics, swimming and diving, synchronized swimming, skiing, softball, tennis, track and field, and volleyball.

The Physical Education Departments work together in providing (a) a large variety of interesting activity courses for the total student body, (b) professional education for prospective teachers and coaches on both the undergraduate and graduate levels, and (c) special opportunities in competitive sports, intramurals, dance performance, and prephysical therapy. Physical Education activity courses are especially designed to develop physiological fitness and to enhance skill, knowledge, appreciation, and enthusiasm in desirable activities that have lasting value in the lives of people. The courses are also designed to develop leadership roles in family, church, and community life. Those majoring in physical education may emphasize either sports or dance and may concentrate on either teaching or athletic coaching.

The Department of Recreation Education assumes the responsibility of (a) preparing professional recreation leaders for responsible positions with a variety of agencies, (b) developing skillful leaders for church and community programs, (c) conducting a large variety of intramural activities, (d) providing leadership for recreational clubs, and (e) offering consultation services for campus and community organizations. The department offers professional preparation programs at both the undergraduate and graduate levels, with several areas of emphasis at each level.

The Youth Leadership Department offers a Bachelor of Science degree with a program designed to prepare men and women for exciting careers with the Boy Scouts of America, Boys Clubs of America, YMCA, YWCA, Campfire Girls, Girl Scouts, and various governmental youth agencies. The acculturation emphasis provided in the program teaches leaders to use the outdoors as a laboratory for enriching experiences and building personal values, especially for culturally deprived and disturbed youth. In addition to professional preparation, the department is involved in developing leadership skills that help people to better serve the Church and community as volunteer leaders and as participating members.

The Community-School Regional Center was established in 1968 under a cooperative arrangement between the University and the Mott Foundation. Through this program, workshops are conducted and courses are offered which lead toward a master's degree with emphasis on the administration of community-school programs. Consultation services are provided to the school districts of Utah and certain other intermountain states.

Graduate Study in the College of Physical Education has developed into an extensive program. By completing the prescribed requirements, a student may obtain a master's degree in health sciences, recreation education, or physical education. A program leading to the Ed.D. degree in physical education is also offered. In graduate study, the student may choose from the several options offered in each department.

Intramural Activities of a large variety are offered to both men and women. Each year this extensive program involves more than 1,000 teams and over 13,000 individual participants (85,000 participations) in 70 different team and individual activities. For additional information, check at the Intramural Office, 112 RB.

Extramural Teams are sponsored in a variety of sports, providing interested students with opportunities for intercollege participation. For men, teams are sponsored in rugby, soccer, volleyball, skiing, and lacrosse. For women, there are teams in swimming, synchronized swimming, tennis, golf, basketball, badminton, archery, volleyball, skiing, field hockey, bowling, fencing, gymnastics, track and field, softball, and paddleball.

Free-Play Facilities for students, faculty members, and staff are available during the evening and on Saturdays. The college encourages participation in these activities, which provide diversion and afford opportunities for development in enjoyable and wholesome activities.

College of Social Sciences

Martin B. Hickman, Dean (164 FOB)

The following departments and special programs are available in the College of Social Sciences:

Anthropology and Archaeology
Asian Studies
Economics

European Studies
Genealogy
Geography
History
Institute of Government Service
International Relations
Law Enforcement and Justice Administration
Political Science
Psychology
Sociology
Undergraduate Social Work
Western Studies Center

Man, himself, has always been a most fascinating study—what he has done, what he has thought, what he has said and how he has reacted to problems confronting him.

The social sciences study activities and relationships of man: his nature, his power to communicate, his environment, what motivates him, how his activities progress, the institutions he has created, and the important social and governmental problems with which he must deal. The social sciences are therefore related disciplines whose purpose is to help man live in the most intelligent and satisfying manner, and they utilize the modern methods of science: controlled observation, laboratory experimentation whenever possible, statistics, and analytical reasoning. Their potential significance for a troubled world is tremendous.

There are two large purposes for which the instructional program of the College of Social Sciences is designed. One is the provision of a broad education, helping those who obtain it to receive in the fullest measure the values found in today's complex civilization and to contribute to the enlargement of those values in an effective, acceptable manner. The other is the preparation of a more limited group as qualified contributors to the discovery of additional truth to add to our present heritage and as capable professional participants in the productive affairs of daily living.

Courses intended to contribute to the first purpose are offered as a service to all students in the University. Career programs for those who choose to do their major work in this college are offered in each department. Advisers stand ready to consult with students in the selection of studies that will contribute most effectively to a broad education and to specialized training in each department.

Religious Instruction

Jeffrey R. Holland, Dean (144 JSB)

The following departments are in Religious Instruction:

Ancient Scripture
Church History and Doctrine

Religious Instruction administers all religious instruction sponsored by the University. More than a score of undergraduate courses are offered, but no bachelor's degree is available.

It has always been the view of The Church of Jesus Christ of Latter-day Saints that education is incomplete without a proper integration of secular, moral, and religious knowledge and values. From its beginning, therefore, Brigham Young University, firm in the belief that no life is full and complete unless established upon a sound ethical and religious basis, has offered courses in religion.

At BYU the undergraduate studies religion simultaneously with his other academic subjects by taking a course in religion each semester he is in residence, rather than by accumulating excessive religion credit in one semester in order to be excused in another semester. For detailed information about the religion requirements, see the General Education Program section of this catalog.

Graduate Studies in Religion. Religious instruction has no master's or doctoral degree programs. There are, however, graduate minors offered on both the master's and the doctoral levels.

Book of Mormon Institute

Paul R. Cheesman, Director (220 JSB)

The Book of Mormon Institute has been organized under Religious Instruction to correlate and promote research and other projects related to the Book of Mormon. The institute helps plan, develop, produce, and distribute materials related to this sacred scripture.

Institute of Mormon Studies

Truman G. Madsen, Director (165 JSB)

The Institute of Mormon Studies is an interdisciplinary institute established to sponsor, correlate, and eventually to select and publish research efforts in all fields that relate to Mormon culture—its history, thought, and institutions. The institute serves as a cross-disciplinary organization, projecting long-range research goals and encouraging the work of established specialists.

At present, the institute is functioning to develop bibliographies and indexes of various Mormon-related source materials and collections; to honor distinguished scholarship by research grants and publication; and to establish close working relationships, not only with recognized scholars, but also with association of similar interests and with individuals or institutions wishing to contribute to or draw upon the developing resources of the institute.

The Richard L. Evans Chair of Christian Understanding

Truman G. Madsen, Professor of Philosophy (165 JSB)

The occupant of the Richard L. Evans Chair of Christian Understanding is responsible for promoting understanding among people of different religious faiths through teaching and other activities centered in Jesus Christ and his teachings. This responsibility involves articulating to a broad audience the Christ-centered values to which Elder Evans dedicated his life, and promoting an enlightening exchange among Latter-day Saints, members of other faiths, and people of good will everywhere.

List of Courses

Semester System. Courses of study at Brigham Young University are offered and credit for satisfactory completion is granted, on a semester basis.

Course Numbering System. Level of instruction of courses is shown by the numbers assigned:

Course number	Type of course
1 to 99	Preparatory and remedial (noncredit)
100 to 299	Lower-division
300 to 499	Upper-division
500 to 599	Advanced undergraduate or graduate
600 to 799	Graduate

Credit-Hour Designations. The three-number code which appears in parentheses immediately after each course title has the following significance:

First number	Semester hours of credit
Second number	Class hours of lecture, recitation, or seminar meeting per week or Minimum hours of individual study required per week
Third number	Laboratory hours required per week or Hours of field study or individual research per week

Abbreviations and Symbols. The following abbreviations and symbols are used in the List of Courses section:

Arr.	Credit, class, or laboratory hours arranged
ea.	Credit-hour designation applies to each course number listed
	Fulfills general education requirements in—
G-AH	American history and government
G-BS	Biological Science
G-HA	Humanities and aesthetics
G-ML	Mathematics, statistics, and logic
G-PS	Physical science
G-R	Religion
G-SS	Social science
m	Designates a course which may be used to fulfill requirements for a minor
R	Designates courses which may be repeated for credit
H	Designates courses offered through the Honors Program
☐	Designates a cross-referenced course—one which originates in one department but may count for credit in another department

Interdisciplinary Courses. Interdisciplinary courses are taught in several areas.

Graduate Courses. For regulations governing study beyond the bachelor's degree, see the **Graduate School Catalog.** Advanced undergraduate or graduate courses (500 series) may be used for graduate credit, with certain limitations.

Reservation of Right to Change Courses. The University makes every effort to ensure the accuracy of the contents of this catalog but reserves the right to eliminate, discontinue, or add courses at any time.

Accounting

Professors: Andersen, Hubbard, Johnson, Knighton, Orton, K. F. Skousen, K. M. Skousen, J. M. Smith, R. J. Smith, Taylor, Woodfield (Chairman, 350 JKB).
Associate Professors: Cameron, Garrison, McAllister, Western.
Assistant Professors: Anderson, Hardy, Herde, McKell, Palmer, Randall, Sonderegger, White.
Instructor: Brackner.

Knowledge of accounting methodology and its ways of describing economic activity has long been a necessary part of education for careers in business. In almost all areas of business, accounting data are a fundamental source of information for purposes of decision making and control. With the rise of mechanical and electronic means of processing data, the trained accountant has been freed from many clerical tasks and is presented with wide opportunities for supervising, at a professional level, the preparation and interpretation of data for operating management and the public.

Professional careers in accounting are to be found in three general areas: (1) management accounting (controllership), (2) public accounting, and (3) government accounting. The management accountant, as a member of the management team, provides information and advice for the purpose of planning and controlling his company's operations. The graduate who works in professional public accounting may be involved in auditing, in tax work, in financial and other advisory services, and in giving many types of advice, e.g., on data processing systems to managements of business firms. Local and state governments, the United States General Accounting Office, the Internal Revenue Service, and other agencies provide opportunities in government accounting.

University and College Requirements

Students wishing to major in accounting must complete the University general education requirements. Scholarly committees on education for accountancy have stressed the need for courses involving comunication, logic, and interpersonal relationships between man and his environment. In line with these recommendations, the faculty of the Department of Accounting encourage students to select courses from philosophy, communications, sociology, psychology, anthropology, English, mathematics, and statistics in fulfilling the general University requirements and in preparing for professional careers in accounting.

Premajor Requirements

A student majoring in the Department of Accounting receives his initial advisement and is assigned to the College of Business Fundamentals Division until he completes the following premajor courses:

Math 110R—Modules 1-4 (or equivalent)	3 hours
Econ. 110	3 hours
Stat. 221	4 hours
Acctg. 201, 203	6 hours
Acctg. 232 A and B	3 hours
Comput. Sci. 133 A and B	3 hours

A student will not be permitted to register for upper-division accounting courses, with the exception of Acctg. 342, until he has successfully completed the above premajor courses with a 2.25 grade-point average or until he has completed all the above premajor courses and earned at least a C grade in each course, without having repeated any of those courses. The student is transferred into the Department of Accounting after he has completed the above premajor requirements.

Major Requirements

Majors in the Department of Accounting may elect one of two series of courses. The first is designed to help students acquire a good understanding of the fundamentals required in the practice of accounting in general; to provide some degree of competence in the measurement, control, and analysis of an organization's economic resources and related liabilities and equities; and to report and interpret the periodic results of operations and financial condition to its management, investors, and other interested parties for purposes of progress evaluation, taxation, and decision making. The second is designed to provide an introduction to the principles of accounting and to provide a specialization in design and analysis of business information systems and in data processing methods.

The Major in General Accounting. Students electing this major are required to complete the following courses:

Acctg. 301, 302, 312, 321, 342, 356, 412, and 475	24 hours
Bus Mgt. 301, 341	6 hours
Bus. Ed. 320	3 hours
Econ. 300, 301	6 hours
Org. Behav. 321	3 hours
	42

In addition to the minimum courses required for this major, the following courses are recommended: Acctg. 401, 402, 403, 421, end 465. 12 hours

The Major in Management Information Systems. Students electing this major are required to complete the following courses:

Comput. Sci 232 or 233 (prerequisite Comput. Sci. 133)	3 hours
Acctg. 301, 312, 332, 342, 356, 455, 457	21 hours
Bus. Mgt. 301, 341	6 hours
Bus. Ed. 320	3 hours
Econ. 300, 301	6 hours
Org. Behav. 321	3 hours
	42

In addition to the minimum courses required for this major, the following courses are recommended:

Acctg. 302, 321, 412, and 475 ....12 hours

Grade-Point Requirements. No more than 3 hours of D credit in accounting and no more than 3 hours of D credit in other College of Business courses, or a total of 6 hours of D credit in College of Business courses, will be allowed for graduation with a degree in accounting.

Further Preparation for Professional Careers

Students should be aware that the courses required and recommended in the foregoing lists are minimal so far as preparation for professional positions in accounting are concerned. In this age of specialization, the trend is to require more and more competence of candidates for positions. Students should carefully consider the possibility of taking additional courses beyond those required for graduation, even though such a consideration might lead to an additional semester or more of preparation for the rigors of professional life.

Preparation for Advanced Degrees

Through the Graduate School and the Department of Accounting a Master of Accountancy degree is available to qualified students. This professionally oriented two-year program begins with the Fall Semester of the student's senior year after the student has completed a specific 34-hour preprofessional program during the junior year. In addition to the required completion of the 65-hour accounting and management program specified by the department, competency in oral and written communication, internship experience or an acceptable alternative, and expertise sufficient to pass professional examinations such as the CPA or CMA are expected.

Students interested in this advanced degree should contact the coordinator of the Master of Accountancy program (348 JKB), preferably before beginning the junior-year courses. It is expected that all premajor and general-education courses (except 6 hours of religion) will be completed before the student begins the preprofessional program.

Minors in Accounting

Minors in the Department of Accounting are required to take the following courses:

Acctg. 201, 203, 301, 302, and 412.

Suggested Program for Majors in Accounting

A suggested program for accounting majors is given below. The first two years of the program will be taken while assigned to the Division of Business Fundamentals. Each student will need to make modifications in this program to meet his individual needs. Courses marked with an asterisk (*) are required for graduation by the University, the college, or the department.

Freshman	Hours
*Religion	4
*American history and government	3
*Biological science	6
*Econ. 110	3
*Comput. Sci. 133A, B	3
*Engl. 111	3
*Health 130	2
*Math. 110R or equivalent	3
*Physical education	1
*Humanities and fine arts	3
Elective	3
Total hours	34

Sophomore	Hours
*Religion	4
*Acctg. 201, 203, 232A and B, and 342	12
*Engl. 215	3
*Humanities and fine arts	3
*Physical education	1
*Physical science	3

*Stat. 221	4
Elective	2
Total hours	32

Junior—General Accounting	Hours
*Religion	4
*Acctg. 301, 302, 312, 356	12
*Bus. Ed. 320	3
*Bus. Mgt. 341	3
*Org. Behav. 321	3
*Econ. 300, 301	6
Elective	3
Total hours	34

Junior—Management Information Systems	Hours
*Religion	4
*Acctg. 301, 312, 332, and 356	12
Bus. Ed. 320	3
*Bus. Mgt. 341	3
*Org Behav. 321	3
*Comput. Sci. 232 or 233	3
*Econ. 300, 301	6
Total hours	34

Senior—General Accounting	Hours
*Religion	2
*Acctg. 321, 412, and 475	9
*Bus. Mgt. 301	3
Electives (consult with faculty adviser)	20
Total hours	34

Senior-Management Information Systems	Hours
*Religion	2
*Acctg. 455 and 457	6
*Bus. Mgt. 301	3
Electives (consult with faculty adviser)	23
Total hours	34

Courses

201. Elementary Accounting. (3:3:1) Home Study also. (m)
A first course in the concepts and methods underlying financial statements.

202. Elementary Accounting. (3:3:1) Home Study also. Prerequisite: Acctg. 201.
The second course in the elementary series covering managerial problems and the control of business operations.

203. Elementary Accounting. (3:3:0) Prerequisite: Acctg. 201.
A second course in accounting for accounting majors. Emphasis is on basic procedures of financial accounting and reporting.

232A, B. Mathematics of Business. (1½:3:1 ea.) Home Study also. Prerequisite: Math. 110R or equivalent.
Application of mathematics to business problems. Each taught in an eight-hour term or block.

301. Intermediate Accounting. (3:3:0) Home Study also. (m) Prerequisite: Acctg. 203 and 232A.
Intermediate course in accounting for general business students and for majors who need a broad foundation for specialized studies which they will take later.

302. Intermediate Accounting. (3:3:0) Home Study also. (m) Prerequisite: Acctg. 301.
The second course in intermediate accounting.

312. Cost Accounting. (3:3:0) Home Study also. (m) Prerequisite: Acctg. 301 and Stat. 221.
An introduction to the principles and practices of cost accounting.

321. Federal Taxes. (3:3:1) (m) Prerequisite: Acctg. 202 or 203.
Basic federal tax legislation and regulations.

332. Advanced Mathematics of Business. (3:3:0) (m) Prerequisite: Acctg. 232 or Math 111 or consent of instructor.
Selected topics from finite mathematics, vectors, matrices, trigonometry, analytical geometry, and elementary differential and integrel calculus as applied to business.

342. An Introduction to Commercial Law. (3:3:0) Home Study also. (m)
A survey of modern American business law as it applies to everyday business practices.

356. Accounting Information Systems. (3:3:0) (m) Prerequisites: Acctg. 202 or 301; Comput. Sci. 133A, B.
Procedures and problems in system design and related topics applied to the financial operations of the business, with special emphasis on electronic computer systems.

401. Special Problems in Accounting I. (2:2:0) (m) Prerequisite: Acctg. 302.
Includes partnerships, joint ventures, consignments, installments, receiverships, estates and trusts, and statements of affairs.

402. Special Problems in Accounting II. (2:2:0) (m) Prerequisite: Acctg. 302.
Home office and branch accounts, business combinations, foreign exchange, and parent and subsidiary accounting.

403. Accounting for Nonprofit Organizations. (2:2:0) (m) Prerequisite: Acctg. 202 or 203 or equivalent.
Accounting concepts and methods peculiar to governmental units, universities, hospitals, and other nonprofit organizations.

412. Managerial Accounting. (3:3:0) (m) Prerequisite: Acctg. 301.
Budgeting, standard costs, cost analysis, and capital budgeting.

421. Advanced Tax Problems. (3:3:0) (m) Prerequisite: Acctg. 321.
Advanced study of federal income tax, estate and gift taxes, and special problems in corporate taxation.

442. Advanced Business Law. (3:3:0) (m) Prerequisite: Acctg. 342.
Business law for accountants and businessmen, with emphasis on laws covered in professional accounting examinations.

455. Data Processing Systems. (3:3:0) (m) Prerequisite: Acctg. 356.
Principles governing design and installation of accounting systems and the selection of equipment for optimum performance in data processing cycles. Offered alternate semesters.

457. Advanced Computer Programming. (3:1:3) (m) Prerequisite: Acctg. 356.
Emphasis on the solution of practical problems in data processing. Individual work on the University's computer and comparison of various computers in current use. Offered alternate semesters.

465. Auditing Theory and Professional Ethics. (3:3:0) (m) Prerequisite: Acctg. 302.
Principles and methods of public accounting, professional responsibility and conduct, and verification techniques of accounts and financial statements.

475. Current Problems in Accounting Theory. (3:3:0) (m) Prerequisite: Acctg. 302.
Studies in current accounting theory.

486. Contemporary Professional Accounting Problems. (3:3:0) (m) Prerequisites: Acctg. 321; completion of or concurrent registration in Acctg. 401, 402, and 465.
Study in accounting problems, with emphasis on problems encountered in professional examinations.

596. Accounting Internship. (3:0:9) Prerequisite: Acctg. 302. Recommended: Acctg. 465.
Practical on-the-job experience and training in industry, in government, and in public accounting firms.

612. Managerial Cost Accounting. (3:3:0) Prerequisites: Acctg. 302, 312, 412.

613. Seminar in Resource Allocation and Control. (3:3:0)

621. Tax Research and Planning. (3:3:0) Prerequisites: Acctg. 321 and preferably Acctg. 421.

632. Quantitative Analysis in Business. (3:3:0) Prerequisite: Acctg. 332.

665. Auditing Seminar. (3:3:0) Prerequisite: Acctg. 465.

675. Theory of Accounts and Statements. (3:3:0) Prerequisites: Acctg. 302, 412, 475.

687R. Seminar in Accounting and Reporting Problems. (1-3:1-3:0 ea.)

691R. Research Seminar. (1-2:1-3:0 ea.) (m)

693. Reading and Conference. (1-3:1-3:0)

696. Accounting Internship. (1-3:Arr.:Arr.) Prerequisite: Acctg. 302. Recommended: Acctg. 465.

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

Aerospace Studies

Professor: Colonel R. B. Jensen (Chairman, 380-A ROTC)
Assistant Professors: Major Leggat, Major Merrill, Captain Atkinson
Tactical Instructors: Master Sergeant Edwards, SSgt. Dabney, SSgt. Linde, SSgt. Millett, SSgt. Odom, SSgt. Snell.

General Information. The Air Force ROTC program is designed to produce highly qualified commissioned officers for the U.S. Air Force. The instructional program complements the academic schedule of the University and is taught by professional career Air Force officers. The student specializes in the major field of his choice and graduates with the ability to function as a junior executive. The aerospace studies courses are designed to teach principles and techniques of leadership and management in preparation for service as an Air Force officer and as a leader in civic and community affairs. All academic work counts toward graduation requirements.

The traditional Air Force ROTC program extends over four years of college and consists of two phases: a two-year basic course during the freshman and sophomore years, and a two-year advanced course covering the junior and senior years of college. Basic course classes meet one hour each week and are designed to acquaint students with world military organizations and current international conditions. Advanced program courses meet three hours each week and emphasize problem solving, research methods, techniques of communication, human relations, creative thinking, management, leadership, military law, defense policies, logistics, and administration.

All students in the four-year program must attend a four-week field training camp at an Air Force base, usually in the summer between the sophomore and junior years.

A two-year program is also offered which enables students to complete all requirements for an Air Force commission in two years of college. Applicants for the two-year program must complete admission requirements during the year prior to the desired date of enrollment and must attend a six-week field training camp at an Air Force base during the summer prior to enrollment. Two-year students normally begin processing during the Fall Semester of their sophomore year and formally enter the Air Force ROTC program at the beginning of their junior year.

All Air Force ROTC students are required to attend a leadership laboratory one hour each week. Practical experience in leadership and command techniques are emphasized during all laboratory periods. Cadet officers and noncommissioned officers direct the laboratory periods under the supervision of active duty Air Force personnel. Leadership laboratory credit for eight semesters of Air Force ROTC fulfills the general education requirements for physical education.

To receive a commission as a second lieutenant in the U.S. Air Force a student must earn a baccalaureate prior to age 30. If designated for pilot or navigation training, all commissioning requirements must be met prior to age 26½.

Students must be citizens or have filed intent to become citizens of the United States. Physical and academic standards for the basic course are the same as those of the University. To qualify for the advanced program under either the two-year or four-year program, the student must pass a mental and physical examination during the year preceding his entry into the professional officer course. At the beginning of the Fall Semester of his junior year the student is sworn into the Air Force Reserves, signs an agreement to complete the last two years of Air Force ROTC, and serve on active duty with the Air Force upon graduation. A student incurs no military obligation prior to joining the reserves.

Four-year students usually enroll in Air Force ROTC during their freshman year. Two-year applicants normally begin their processing during the Fall Semester of their sophomore year and formally enter the program at the beginning of their junior year. Students desiring to enter the program at other times should contact the professor of aerospace studies.

Minor in Aerospace Studies. Students desiring aerospace studies as a minor must complete at least 14 hours of course work, the Air Force ROTC requirements, and qualify for a commission in the United States Air Force.

Textbooks, Uniforms, and Allowance. All textbooks, uniforms, and uniform accessories are furnished by the Air Force. All students in the advanced program receive a tax-free allowance of $100 per month (about $2,000 for two years).

Air Force ROTC Scholarship Program. Full tuition assistance is available to students in the two-year or four-year program on a competitive basis. The scholarship includes tuition, fees, full textbook allowance, and $100 per month. Contact the department for application procedures.

Field Training. This training provides students an increased understanding of the Air Force mission and operation. Students receive practical experience in leadership and management while residing on an Air Force base. The program normally includes an orientation flight in high-performance aircraft for each individual. Medical care, housing, food, and uniforms are provided. Approximately $320 in pay is received for four-week training and $480 for six-week training. Transportation is provided to and from the training base.

Flight Instruction Program. A flight instruction program is conducted by an accredited flying school. Senior cadets who have qualified for pilot training are eligible to participate and receive twenty-five hours of flying instruction. Ground school instruction in navigation, weather, flight rules, and other appropriate subjects is presented by Air Force pilots assigned to the department.

Extracurricular Activities. Each Air Force ROTC student will be able to participate in many extracurricular activities. Among these activities are the Arnold Air Society, Air Force ROTC Chorus, Air Force ROTC Band, color guard, drill teams, annual Military Ball, and numerous school service projects performed by the Cadet Corps. Associations and friendships formed continue long after college.

LDS Missions. Students desiring to serve a Church mission should do so between their freshman and sophomore years. This will facilitate entrance into the advanced course. Scholarship students may have their scholarships held for them while they fulfill a mission as long as they do so before entering the advanced program.

Period of Nonattendance. Four-year program students in Air Force ROTC who are in a five-year University program are allowed a year of nonattendance between the basic and advanced courses. Out-of-phase students and those who will be student teaching should consult with the department chairman.

Discipline. Disciplinary training in the Cadet Corps is formulated and administered by the student officers. Air Force ROTC students are civilians and are not subject to military law.

Veterans. A veteran seeking a commission through Air Force ROTC may have part or all of the freshman and sophomore program waived. Allowances are paid in addition to G.I. Bill benefits.

Course Fee. A course fee of $8 per semester is required of each participating student at the time of enrollment. The purpose of this fee is to cover student publications, activity expenses, and laboratory costs.

Angel Flight. Angel Flight is a nationally affiliated campus service organization for women students. Members of Angel Flight are usually selected for membership during the Fall Semester. They are required to register for leadership laboratory corresponding to their academic year in the University.

Sequence of Courses

The following is the normal sequence of Air Force ROTC classes: (Two-year students follow the junior and senior schedule.)

General Military Course (Basic)

Freshman Year	F	W
Aero. Stud. 110, 111	1	1
Aero. Stud. 110A, 111A	½	½
Sophomore Year		
Aero. Stud. 210, 211	1	1
Aero. Stud. 210A, 211A	½	½

Professional Officer Course (Advanced)

Junior Year		
Aero. Stud. 310, 311	3	3
Aero. Stud. 310A, 311A	½	½
Senior Year		
Aero. Stud. 410, 411	3	3
Aero. Stud. 410A, 411A	½	½
Aero. Stud. 420*	2	
Aero. Stud. 420A*	1	

*Students qualifying for the Flight Instruction Program

Courses

110. U.S. Air Force Organization and Strategic Forces. (1:1:0)
A study of Air Force history, organization, and doctrine with emphasis on strategic force requirements.

111. Aerospace Defense, General Purpose, and Support Forces. (1:1:0)
A survey of U.S. Air Force Defense Forces, General Purpose Forces, and Tactical Air Force.

110A, 111A. Leadership Laboratory—Freshmen. (½:0:1 ea.)
Basic fundamentals of military leadership—drill, courtesy, planning, and organizing at various levels of responsibility.

210. The Developmental Growth of Air Power. (1:1:0) Prerequisite: AS 111 or consent of department chairman.
The development of various concepts of air power employment, emphasizing factors that have prompted research and technological change.

211. The Developmental Growth of Air Power. (1:1:0) Prerequisite: Aero. Stud. 111 or consent of department chairman.
The development of various concepts of air power employment, emphasizing factors that have prompted research and technological change.

210A, 211A. Leadership Laboratory—Sophomores. (½:0:1 ea.)
As listed for Aero. Stud. 110A/111A, increased emphasis on performance level.

310. National Security Forces in Contemporary American Society. (3:3:0) (m)
By permission only. Study of the military profession, civil-military interaction, and the formulation of defense strategy.

311. National Security Forces in Contemporary American Society. (3:3:0) (m)
By permission only. Study of the strategy and management of conflict and the formulation and implementation of U.S. defense policy.

310A, 311A. Leadership Laboratory—Juniors (½:0:1 ea.)
As listed for Aero. Stud. 110A/111A, students perform as cadet officers.

410. Leadership and Management. (3:3:0) (m) Prerequisites: Aero. Stud. 310, 311.
By permission only. Study of principles of leadership, problem solving, communication, discipline, and human relations.

411. Leadership and Management. (3:3:0) (m) Prerequisites: Aero. Stud. 310, 311.
By permission only. Study of Air Force management and personnel policies, data processing, orientation, and Air Force control system.

410A, 411A. Leadership Laboratory—Seniors. (½:0:1 ea.)
As listed for Aero. Stud. 310A. Senior cadets perform in leadership positions in planning and conducting all activities of the Cadet Corps.

420. Flight Instruction Ground School. (2:2:0) Prerequisite: 6 semester hours of advanced aerospace studies courses. By permission only.
Proficiency in FAA regulations, preflight facts, aerial navigation and radio navigation techniques, weight and balance computation, and Airman Information Manual data to enable students to successfully pass the FAA Private Pilot Written Examination.

420A. Flight Instruction Laboratory. (1:0:2) (m) Prerequisites: Enrollment in Aero. Stud. 420, membership in Air Force ROTC, and qualified for USAF pilot training. By permission only.
Dual and solo flying to include basic and advanced flight maneuvers in light aircraft.

Agricultural Economics

Professors: Carpenter, Corbridge, Fuhriman, Infanger.
Associate Professor: Wood (Chairman, 475 WIDB).

Agricultural economics emphasizes the economic and business aspects of farm-ranch units and of the agribusiness and food industry firms. The discipline also includes the economic aspects of natural resource use and of rural community development. A shortage of trained personnel currently exists in these areas; therefore, excellent employment opportunities are available for well-prepared graduates.

Agricultural economics offers training which will be helpful for students who contemplate employment in farm-ranch management or operation, in government or private agencies, in farm finance institutions, or in extension, sales, or managerial positions in the agribusiness or food processing and distribution industries. It also prepares students for graduate training.

Major Requirements

All students majoring in agricultural economics should take the following or equivalent classes:

Core

Acctg. 201, 203, 232
AgHrt. 282
An. Sci. 121 or 153 or 207
Comput. Sci. 131 or 133A
Math. 105 or 110R (Modues 1-4)

Departmental

Ag. Econ. 112
Econ. 300 or 310
Econ. 301 or 311
Ag. Econ. 325, 410 or 411, 460, 490R

A student is encouraged to concentrate on one of the following options: (1) preprofessional, (2) farm-ranch operation or management, (3) agribusiness, or (4) food industries management. All majors except those selecting option 4 are required to complete a minimum of 20 hours of upper-division or advanced undergraduate or graduate courses in agricultural economics. The food industries management option will give a student a double major in agricultural economics-animal science or agricultural economics-food science and nutrition. Students selecting this option will be required to complete a minimum of 20 hours of lower, upper, or advanced undergraduate or graduate courses in agricultural economics as well as 20 hours in either animal science or food science and nutrition.

Minor Requirements

Students minoring in agricultural economics should complete 12 hours of course work in the department.

Options

Preprofessional. A student anticipating graduate training is advised to obtain a good background in economic theory, mathematics, and statistics. The following courses are recommended: Math. 112, Stat. 221, Econ. 315 and 387 or 388. Additional supporting classes are recommended from the following areas: agricultural economics, agronomy, animal science, business management, economics, horticulture, mathematics, and statistics.

Farm-Ranch Operation or Management. A student anticipating this option is advised to obtain a good background in agronomy and horticulture and animal science. The following additional courses are suggested: Ag. Econ. 320 and 520 or 521, AgHrt. 305, 331, An. Sci. 221, 307, Range Sci. 365, 462. Additional supporting classes are recommended from the following areas: accounting, agricultural economics, agronomy, animal science, business management, horticulture, and range science.

Agribusiness. A student selecting this option should concentrate on training that will lead to a minor in business management and/or accounting as well as training in agronomy and animal science. The following classes should be included: Ag. Econ. 520 or 521, 570R, An. Sci. 525. Additional supporting classes are recommended from the following areas: accounting, agricultural economics, agronomy, animal science, business management, and economics.

Food Industries Management. The basic training needed in this option is in business management and economics, with enough chemistry, animal/food science and microbiology courses to provide a sound scientific background. Students selecting this option will follow either the Ag. Econ.-An. Sci. or the Ag. Econ.-FSN sequence below:

Ag. Econ.-An. Sci. Sequence

An. Sci. 112, 207, 328, 525, and 8 hours from 221, 325, 361, 365, 374, 378, 507
Chem. 102, 103
FSN 264, 265, 461
Micro. 321, 322, 361
Stat. 221
Zool. 105

Ag. Econ.-FSN Sequence

An. Sci. 328, 525
Chem. 102, 103
FSN 235, 264, 265, 461, 462, 465
Micro. 321, 322, 361
Stat. 221
Zool. 105

Associate Degree in Agricultural Economics. The associate-degree program is designed for those students who do not complete the four-year baccalaureate degree. Courses taken in this program may count toward the baccalaureate degree if the student later decides to further his education. A candidate must satisfy the University associate-degree general-education requirements. The following two-year outline suggests how these requirements may be met:

First Year	F	W
Rel. 121, 122	2	2
Physical education	½	½
Engl. 111	3	
Ag. Econ. 112, 325	3	4
Hist. 170, Health	3	2
Chem. 100 or Physics 137		3
AgHrt. 151 or 282	4	
An. Sci. 153 or 207		3-4
Electives*	2	2-3
	17½	17½

Second Year	F	W
Religion	2	2
Engl. 212	3	
Biological Science	3	
Humanities		2
Ag. Econ. 320, 410, or 411	3	3
Acctg. 201, 202	3	3
Electives*	3	6
	17	16

*Suggested electives include all courses in agricultural economics, animal science, agronomy and horticulture, and manufacturing technology.

Courses

Note: Ag. Econ. 112 or equivalent or consent of instructor is prerequisite to all other Ag. Econ. courses.

105. (Ag. Econ.-AgHrt.-An. Sci.) Agriculture: Food and Man. (3:3:0) (G-BS)
Plants and animals as agricultural products—their husbandry, distribution, and utilization.

112. Economics and Agriculture. (3:3:0) (G-SS m)
Basic economic principles and problems, with special reference to agricultural firms and industry.

☐ **Economics 300. Microeconomics for Business Decisions.** (3:3:0)

☐ **Economics 301. Macroeconomics for Business Decisions.** (3:3:0)

☐ **Economics 310. Theory of Price.** (3:3:0)

☐ **Economics 311. Theory of Income, Employment, and the Price Level.** (3:3:0)

320. Agribusiness Organization and Finance. (3:3:0) (m) Wood
Principles of agribusiness finance and credit; forms of agribusiness organization.

325. Farm and Ranch Management. (4:3:2) Home Study also. (m) Corbridge
Principles of optimum resource combinations; manual-computer solutions; farm records; budgeting procedures.

☐ **Accounting 342. An Introduction to Commercial Law.** (3:3:0)

350R. Land and Range Economics. (3:3:0 ea.) (G-SS m)
Settlement, use, ownership, tenure, control, and management of land; organization of land agencies; land policies; public and private lands or American Indian lands.

355. Rural Development Economics. (3:3:0) (G-SS)
Economic policies, principles, agencies, and programs which contribute to the solution of rural problems.

390. Natural-Resource Economics. (3:3:0) (G-SS) Infanger
Economic principles underlying utilization and conservation of natural resources.

410. Agricultural Marketing. (3:3:0) Home Study also. (m) Carpenter
Economic principles, policies, institutions, practices, and problems in marketing major agricultural products.

411. Marketing of Livestock and Livestock Products. (3:3:0) (m) Carpenter
Economic principles, policies, institutions, practices, and their application to livestock marketing.

425, 426. Real Estate Appraisal. (3 ea.:3 ea:0) Home Study also. (m) Corbridge
Principles of appraisal; urban and rural property valuation techniques; recognized appraisal procedures.

460. Public Programs, Policies, and Agriculture. (2:2:0) Carpenter, Infanger
Analysis of the impacts of public programs, policies and issues, external forces, and institutions that affect the agricultural industry.

490R. Seminar. (1:1:0) (m)

493R. (Ag. Econ.—AgHrt.—An. Sci.) Selected Agricultural Production Practices. (1-3:Arr.:Arr. ea.) (m) Prerequisite: consent of instructor.
An extended field course to acquaint students with agricultural economic, animal science, and agronomic and horticultural problems and practices in important commercial agricultural areas.

520. (Ag. Econ.—An. Sci.—Bot.) Management of Ranch Resources. (3:2:2) (m) Prerequisites: senior or graduate standing and consent of instructor.
Corbridge, Shumway, Vallentine
Team taught. Commercial ranch case study. Management plan developed, consisting of maximum profit practices and enterprise combinations.

521. Management of Cropland Resources. (3:3:0) Prerequisites: senior or graduate standing and consent of instructor. Corbridge, Robinson
Team taught. Commercial farm case study. Management plan developed, consisting of maximum profit practices and enterprise combinations.

570R. Advanced Topics. (1-3:1-3:0 ea.) Prerequisite: consent of instructor.
Topics in finance, marketing, policy, and economic theory.

575R. Research Methods and Reporting. (1-3:Arr.:Arr.) Prerequisite: consent of instructor. Wood
Principles of research methodology; application of research tools, and presentation of research results. Requires an acceptable written report.

595R. Readings and Conferences. (1-3:Arr.:Arr. ea.)

597R. Individual Research. (1-3:Arr.:Arr. ea.)

Agronomy and Horticulture

Professors: Allred, Farnsworth, Laws, Robison (Chairman, 275 WIDB), Walker (emeritus).
Associate Professors: Ashton (emeritus), Reimschüssel.
Assistant Professors: Nelson, Williams.

Agronomy deals with the scientific principles and practices of field crop production, crop ecology, and physiology and crop improvement; and with the fertility, irrigation, management, and conservation of soils.

Horticulture deals with the production, handling, processing, and storing of fruit and vegetable crops and with flowers and other ornamental plants. Landscape planning and design for home and community beautification, turf and park management, and greenhouse and nursery operations are also included.

In these subject matter fields, knowledge of the basic principles of the biological and physical sciences is applied to the management of soils and the production of food, fiber, and ornamental plants. Emphasis is given to basic scientific principles and modern methods of practical application.

Students may elect to major in either agronomy or horticulture or to have a divided major. Excellent laboratory, greenhouse, orchard, and field facilities are available to support undergraduate studies for the B.S. degree and graduate studies at the master's level in this department. Graduates interested in further study are encouraged to go to one of the state universities for graduate work at the doctorate level.

Opportunities

Demands by employers for agronomy and horticulture graduates are far exceeding the number of graduates. Agronomy and horticulture training prepares a student for employment by state and federal agencies, private industry, and agribusiness, for return to personal enterprise, or for graduate school—depending on course options.

Departmental Requirements

Students who major in either agronomy or horticulture will be expected to fulfill all of the requirements set forth under the general education program and also those listed under Graduation Requirements in this catalog. They will be expected also to complete a minimum of 26 hours of course work and 2 hours of seminar in their major.

A minor is not required, but a substantial number of supporting courses in fields closely related to the major are required. A strong preparation in mathematics and the physical and biological sciences is recommended for those who major in agronomy or horticulture.

At least half of the credit for the major in either agronomy or horticulture must be taken at Brigham Young University, and no D credit in the major will be counted toward fulfillment of this requirement.

Agronomy Major

Students who major in agronomy will be required to take the following courses: AgHrt. 151, 282, 305, 491R.

Horticulture Major

Students who major in horticulture may choose to specialize in fruit and vegetable production or in ornamental horticulture (floriculture and greenhouse production, nursery production, and turf production).

All majors in horticulture are required to take the following courses: AgHrt. 102, 103, 282, 491R.

Options

Students may choose within either the agronomy and horticulture majors a production, science, or agribusiness option.

The production option is intended for students returning to farming or those not anticipating graduate school. This option provides students with an opportunity to select classes and obtain a broad educational background. Students who take the production option and then decide to attend graduate school will have to obtain the required chemistry and math before leaving the department.

The science option requires more math and chemistry than the production option and is designed for students intending to go to graduate school. These students should take agronomy and horticulture classes that will provide a base for future graduate work.

Production Option

Agronomy
- Math. 105
- Comput. Sci. 131
- Chem. 102, 103
- Bot. 101
- An. Sci. 121 or 207
- Ag. Econ. 112
- AgHrt. 102, 302, 440

Horticulture
- Math. 105
- Comput. Sci. 131
- Chem. 102, 103
- Bot. 101
- Ag. Econ. 112
- AgHrt. 207, 318, 475 or 340, 351, 352

Science Option

Agronomy
- Math. 105 and 106 or Math. 109 and 110 (Modules 1-4)
- Chem. 102, 106, 223, 252
- Bot. 101, 440
- Micro. 121 or 331
- Stat. 221

Horticulture
- Math. 105, 106 or Math. 109, 110 (Modules 1-4)
- Chem. 105, 106, 223, 252
- Bot. 101, 440
- Micro. 121 or 331
- Stat. 221

Agribusiness Option

A student selecting this option should take strong supporting agricultural economics courses.

The following courses are recommended in addition to the courses required for a major in the various phases of agronomy and horticulture: Acctg. 201, Ag. Econ. 112, 320, 325, 410, 521.

A student majoring in recreation in the College of Physical Education who desires training in the maintenance of parks and recreation areas should register for 14 or more hours selected from the following: AgHrt. 102, 103, 317, 318, 319, 430.

Additional Supporting Courses Recommended

An. Sci. 121, 153, 207, 221, 335, 340, 361
Bot. 321, 370, 440, 480
Physics 201, 202
Comput. Sci. 131, 133A
Acct. 232

Associate Degree

The associate degree program is designed for those students who do not complete the four-year baccalaureate degree, though courses taken in this program may count toward the baccalaureate degree if the student later decides to further his education. A candidate must satisfy the University associate degree general education requirements. The following two-year outline suggests how these requirements may be met:

Horticulture

First Year	F	W
Relig. 121, 122	2	2
Engl. 111		3
Hist. 170		3
Chem. 102	5	
Bot. 105		3
AgHrt. 102, 282	3	4
AgHrt. 340, 471 or 103, 319	3	3(*2)
Electives**	4	
	17	18(*17)

Second Year	F	W
Relig.	2	2
Physical education	½	½
Engl. 212		3
Health 130		2
Humanities		2
Bot. 480	3	
AgHrt. 305	4	
AgHrt.*** 310, 351, 352 or AgHrt.* 207, 317, 430	***4(*3)	***6(*7)
Electives	4	2
	***17½(*16½)	***17½(*18½)

*Ornamentals option

**Electives may include courses in agronomy and horticulture, animal science, agricultural economics, and technology.

***Fruit and vegetable option

Agronomy

First Year	F	W
Relig. 121, 122	2	2
Engl. 111		3
Health 130		2
Chem. 102	5	
Biological science		3
AgHrt. 151, 152	4	4
AgHrt. 440		4
An. Sci. 207	4	
Ag. Econ. 112	3	
	18	18

Second Year	F	W
Religion	2	2
Physical education	½	½
Engl. 212		3
Hist. 170		3
Humanities		2
AgHrt. 302, 540	3	3
AgHrt. 305, 491R	4	1
AgHrt. 331	3	
Electives*	5	2
	17½	16½

*Electives may include courses in agronomy and horticulture, animal science, agricultural economics, and technology.

Courses

102. Plant Propagation. (3:2:2) (m) Williams

Introduction to propagation of plants by seeds, cuttings, budding, and grafting, with special emphasis on fruit and ornamental plants.

103. Home Landscape Design. (3:3:0) (m) Reimschüssel
Principles of design and composition as applied to home ground development and related plant culture and maintenance.

105. (Ag. Econ.—AgHrt.—An. Sci.) Agriculture: Food and Man. (3:3:0) (G-BS) Robison
Plants and animals as agricultural products—their husbandry, distribution, and utilization.

112. Floral Design. (2:1:2) Reimschüssel
Principles and methods of arranging flowers and other plant materials for decorative use in the home and for exhibition.

151. Field Crop Production. (4:3:2) (m) Allred
Crop production principles, soil-plant relationships, classification and distribution of farm crops, corn and small grain improvement, tillage, and crop rotation.

207. Floriculture. (3:2:3) (m) Reimschüssel
Herbaceous plant culture in the greenhouse and out-of-doors.

282. General Soils. (4:3:3) (m) Recommended: high school chemistry. Nelson
Introduction to the physical, chemical, and microbiological properties of soils.

302. Irrigation and Drainage. (3:2:3) (m) Prerequisites: AgHrt. 282; Math. 101 or 105. Farnsworth
Proper use of irrigation waters; water supply; water measurements; drainage; drainage systems.

303. Soil Genesis, Classification, and Survey. (3:2:3) (m) Prerequisite: AgHrt. 282. Recommended: Geol. 111. Nelson
Influence of geologic forces, climatic environment, and vegetation on the morphology and development of soils. Methods of soil classification and survey.

305. Soil Fertility. (4:3:3) (m) Prerequisites. AgHrt. 282 and Chem. 102 or equivalent. Laws
Principles of soil fertility, commercial fertilizers, farm manures, green manures, and crop rotations in crop production.

308. Soil and Water Conservation. (2:2:0) (m) Farnsworth
Principles of soil and water conservation, erosion control, and land use for the maintenance of soil fertility and permanent agricultural production.

310. Small-Fruit Production. (2:2:0) (m) Williams
Methods of propagating, planting, growing, and handling grapes, strawberries, and other bush-type fruits. Offered 1975 and alternate years.

317. Nursery Management. (2:1:2) Prerequisite: AgHrt. 102 or 103 or equivalent. Reimschüssel
Principles underlying the profitable management of a nursery: site, soil, culture, handling of nursery stock, transplanting, propagation, and pest problems.

318. Greenhouse Management. (4:2:4) Prerequisite: AgHrt. 207 or equivalent. Reimschüssel
Methods of propagating, planting, growing, and storing commercial flowers.

319. Turf Management. (2:1:2) (m) Prerequisite: AgHrt. 207 or equivalent. Reimschüssel
The management of turf grasses as related to climate, soil, and use on the golf course, park, and private areas.

331. Weed Control. (3:3:2) (m) Recommended: AgHrt. 151, 282. Robison
Cultural, chemical, and biological methods of weed control.

340. Vegetable Crops. (3:2:2) (m) Williams
Selection, cultural practices, harvesting, storing, and marketing of vegetable crops.

351, 352. Fruit Production. (3:2:3 ea.) Prerequisite: AgHrt. 102. Williams
Fundamentals of fruit production in deciduous orchards, including status of the industry, varieties, fruiting habits, cultural practices, pruning, spraying, harvesting, and storage.

430. Landscape and Planting Design. (3:0:6) (m) Prerequisite. AgHrt. 103. Recommended: drawing. Reimschüssel
Designs and plant combinations for private and public grounds using woody and herbaceous plants.

440. Forage Crops and Pasture Management. (4:3:2) (m) Recommended: AgHrt. 151. Allred
Plant characteristics, methods of production and utilization of forage crops, and utilization of irrigated and dry land pastures.

457. Ecology of Weeds and Crops. (2:2:0) (m) Allred
Field study of important grasses, legumes, other agronomic crops, and weeds; adaption to soil, moisture, light, and other environmental conditions; growth characteristics, utilization, and control.

460. Soil and Crop Management. (2:1:2) (m) Prerequisite: AgHrt. 151 and 282 or equivalent. Laws
Integration and application of the basic agricultural sciences in crop production and soil management.

471. Pest Control in Orchards and Field Crops. (3:3:0) Recommended: AgHrt. 151 or 351; Zool. 331 or 534. Williams
Cultural, chemical, and biological methods and machines used in the control of pests and diseases of orchards and field crops.

475. Maintenance of Parks and Recreation Areas. (4:3:2) Prerequisite: Bot. 101 or AgHrt. 102 or 103. Reimschüssel
General maintenance of lawns and herbaceous and woody plants in a city is considered. (Recommended for those who minor in horticulture with emphasis in park planning and management.)

491R. Seminar. (1:1:0 ea.)
For majors in the senior year. Current literature in agronomy and horticulture is reviewed.

493R. Selected Agricultural Production Practices. (1-3: Arr.:Arr. ea.) (m) Prerequisite: consent of instructor. Farnsworth
An extended field course to acquaint students with agricultural economic, animal science, and agronomic and horticultural problems and practices in important commercial agricultural areas.

497R. Special Problems. (1-2:1-2:0 ea.)
Seniors specializing in agronomy or horticulture may conduct research on a special problem.

511. Soil Physics. (3:2:3) (m) Prerequisites: AgHrt. 282: Math. 101 or 105 and Chem. 102 or equivalent. Laws
Physical properties of soils and their effects upon air, water, and temperature in relation to soil management and crop production.

514. Soil Microbiology. (3:2:3) Prerequisites: AgHrt. 282 Chem. 252, and Micro. 331. Farnsworth
Ecology and role of soil microorganisms in soil fertility: decomposition of organic matter and waste materials; degradation of pesticides and other agricultural chemicals.

520. Saline and Alkali Soils. (3:2:3) (m) Prerequisites: AgHrt. 302, 305. Nelson
Physical and chemical properties of saline and alkali soils—their diagnosis, reclamation, and management for crop production.

☐ **Agricultural Economics 521. Management of Cropland Resources.** (3:3:0) Prerequisites: senior or graduate standing and consent of instructor. Corbridge, Nelson

Team-taught agronomy and agricultural economics. Commercial farm case study. Management plan developed, consisting of maximum profit practices and enterprise combinations.

540. Advanced Crop Production. (3:3:0) (m) Prerequisites: AgHrt. 151, 305, 559; Bot. 440. Allred
Basic concepts in plant-soil-climatic relationships, with emphasis on recent advances in crop culture and management.

550. Advanced Horticulture. (3:3:0) (m) Prerequisites: AgHrt. 318 or 340 or 351, and 352; Bot. 440. Williams
Fundamental principles relating to horticultural practices and physiological development.

559. Plant Breeding. (2:2:0) Prerequisite: AgHrt. 151 or equivalent; Bot. 372. Robison
Principles of genetics and methods of plant breeding applied to the improvement of agronomic and horticultural crops.

560. Soil and Plant Analysis. (2:0:6) Prerequisites: AgHrt. 305, Chem. 223. Laws
Laboratory chemical analysis of soils and plant materials in soil and plant research.

598R. Conferences and Reports. (1-2:1-2:0 ea.) Prerequisite: consent of instructor.

605. Chemistry of Soil-Plant Relationships. (4:3:3) Laws

607. Soil Physical Conditions. (3:3:0) Laws

694R. Seminar. (1:1:0 ea.) Laws

697R. Research. (Arr. ea.)

699R. Thesis for Master's Degree. (6-9:Arr.:Arr. ea.)

Animal Science

Professors: Cannon (emeritus), Gardner, Hoopes, Orme (Chairman, 375 WIDB), Park, Shumway, Wallentine.
Assistant Professors: Johnston, Smith.
Instructors: Kuhl, Pace, Rees, Thompson.

The Department of Animal Science offers training for the following activities: (1) government agricultural positions; (2) graduate study; (3) positions in the meat, dairy, and food industries; (4) livestock farming and management; (5) veterinary school; and (6) agricultural teaching.

A minimum of 28 credit hours of course work in animal science is required for a major. Transfer students majoring in animal science must earn at least 14 credits in their major field while in residence at Brigham Young University. Preveterinary students will find special instructions listed under the College of Biological and Agricultural Sciences in this catalog.

The animal science major should study the three curriculum options and the associate-degree offering listed below and choose the one which seems best suited to his needs. This may well be done after counseling with an adviser. Either of these options may be completed and a B.S. degree obtained in three years with careful planning and attendance during Spring and Summer terms.

The Major in Animal Science

Business and Industry Option

Required

An. Sci. 112; 121 or equivalent*; 153; 207; 221 or 361; 292; 492; 307, 507 or 515; 6 elective hours from all listed courses.
Ag. Econ. 325, 411.
AgHrt. 151 or 282.
Biological science—6 hours as recommended by the adviser.
Physical science—Chem. 102, 103 or equivalent.
Mathematics, statistics, logic, and science—Math 105 or 110R; Ag. Econ. 330, Stat. 221, or equivalent.
Social Science—Ag. Econ. 112 or Econ. 212.
Acctg. 201, 202.

Suggested Electives

Animal science—all listed courses.
Ag. Econ. 350R, 425, 460.
AgHrt. 302, 305, 440.
Mathematics, statistics, logic, and science—Math. 109.
Acctg. 232.
Comput. Sci. 131, 231.

Science Option

Required

An. Sci. 112, 121 or equivalent*, 153, 207, 292, 492, 507 or 515; 9 elective hours from all listed courses.
AgHrt. 282.
Biological science—Zool. 201 or equivalent.
Physical science—Chem. 102, 103, 281, 284 or equivalent.
Social science—Ag. Econ. 112.
Mathematics, statistics, logic, and science—Math. 105 and 106 or 111; Ag. Econ. 330; or Math. 109, Stat. 221.

Suggested Electives

Animal science—all listed courses.
AgHrt. 305, 440.
Bot. 370.
Biological science—Zool. 203, 380, 460, 483; Micro. 321, 322, 331.
Physical science—Chem. 223; Physics 201, 202.
Mathematics, statistics, logic, and science—Math. 109; Stat. 336, 337.
Engl. 316.
Comput. Sci. 131, 231.

*3 production or processing classes, not including An. Sci. 330.

Suggested Schedule

Freshman Year	Industry	Science
English	3	3
Relig. 121, 122	4	4
An. Sci. 112	4	4
Math. 101, 105, or 109	3-4	3-4
Chem. 102, 103	6	6
Physical education	1	1
An. Sci. 121	3	3
An. Sci.	3	3
Electives	5	4
Total hours	32-33	31-32

Sophomore Year	Industry	Science
Religion	4	4
An. Sci. 207	4	4
An. Sci. 221	3	
Animal science electives	3-6	3
Chem. 281, 284		5
Physical education	1	1
AgHrt. or Ag. Econ.	4	4
Math. 106		3
Biological science	6	6
Electives	6-7	5
Total hours	30-34	34

The Associate Degree in Animal Science

Students may elect to receive an associate degree in Animal Science by completing the course shown below. The course will require approximately two years to complete. If desired, a baccalaureate degree may be obtained later by completing the additional coursework described above.

Associate Degree Requirements and Suggested Schedule

First Year	F	W
Relig. 121, 122	2	2
Engl. 111, 212, or 316	3	3
Chem. 102, 103		6
Acctg. 201	3	
An. Sci. 121, 153	3	3
An. Sci. 221 or 361	3-4	
AgHrt. 282	4	
	18	14

Second Year	F	W
Religion	2	2
Ag. Econ. 325 or 410	3-4	
*Animal science internship	3	5
An. Sci: 207, 464	3	3
Agricultural economics electives	4	4
Elective	2	3
	17	17

*Internships may be in any production or processing area.

It is recommended that the student consider registration for Spring and Summer terms. Advisers will assist in planning.

Food Industries Management Option: Animal Science—Agricultural Economics Major

Food production, processing, packaging, and distribution constitute one of America's largest industries. A shortage of trained personnel currently exists in these industries; therefore, excellent employment opportunities are available for prepared graduates.

Students trained in food industries management are prepared for careers in the business and management phases of companies and agencies involved in the production, processing, conversion, packaging, and distribution of all food products.

The food industries management option gives the student a double major in agricultural economics and animal science, as well as a minor in business management. The basic training is in the business, economic, and management area of food industries, with enough science courses to provide a sound scientific basis for decision making.

Courses (116 hours)

Ag. Econ. 112, 320, 330, 411, 460, 570R
An. Sci. 112, 207, 328, 525, and 8 hrs. from 221, 325, 361, 365, 374, 378, 492, 507
FSN 264, 265, 461
Acctg. 201, 202
Chem. 102, 103
Micro. 321, 332 or 361
Math. 105 or 110R
Zool. 105
General education
Electives

Courses

105. (Ag. Econ.—AgHrt.—An. Sci.) Agriculture: Food and Man. (3:3:0) (G-BS)
Plants and animals as agricultural products—their husbandry, distribution, and utilization.

112. Animal Physiology and Anatomy. (4:3:2) Hoopes
Applied study of the structure and functions of the animal body.

121. Principles of Animal Production. (3:3:3) Johnston
Methods of management and production of animals and animal products.

130. (An.Sci.-P.E.) Beginning Equitation (½:0:2) Bunker, Pace
Instruction in the principles of Western Pleasure Equitation. Grooming and handling of horses, with limited emphasis placed upon feeding and management.

153. Fundamentals of Animal Breeding. (3:3:0) Park
Principles involved in breeding animals, including physiology of reproduction, heredity, variation, selection, and systems of breeding.

207. Feeds and Feeding. (4:3:3) Prerequisites: algebra; Chem. 102; or equivalent. Gardner, Shumway
Principles of nutrition and their application to all types of livestock.

221. Livestock and Meat Evaluation and Selection. (3:2:4) Orme, Park

292. Seminar. (1:1:0) Shumway

307. Applied Nutrition. (3:3:0) Prerequisire: An. Sci. 207.
Case studies in ruminant and nonruminant nutrition.

312. Animal Hygiene. (4:3:3) Prerequisite: An. Sci. 112. Recommended: Micro. 321. Hoopes
Principles of animal sanitation in relation to disease prevention and control.

324. Consumer and Institutional Meats. (2:1:3) Home Study also. Orme
Nutrition, selection, pricing, and preparation of meats.

325. Meat and Meat Products. (3:2:3) Orme
Preservation, slaughtering, cutting, identification, inspection, and pricing of meats.

328. Meat Processing Methods. (2:1:3) Orme
Principles of processed or prepared meats.

330. Horse Husbandry. (2:1:3) Pace
Feeding, management, and selection, with an introduction to equitation.

335. Beef Cattle Production. (3:2:3) Home Study also. Shumway
Nutrition, genetics, physiology, and management for production of cattle.

340. Sheep Production. (2:1:3) Wallentine
Nutrition, genetics, physiology, and management of range and farm sheep operations.

345. Swine Production. (2:1:3) Orme
Nutrition, genetics, physiology, and management of swine.

361. Elements of Dairying. (4:3:3) (m) Prerequisites: completion of or concurrent registration in An. Sci. 153 and 207. Gardner
General principles of breeding, feeding, and management of dairy cattle.

362R. Advanced Dairy Production Laboratory. (1-2:0:3-6 ea.) Academic credit limited to one year. Prerequisite: completion of or concurrent registration in An. Sci. 361. Gardner
Student dairy herd.

365. Milk and Milk Products. (3:2:3) Home Study also. Prerequisite: Chem. 102 or equivalent. Call
Properties of milk and milk products and methods of processing and distribution.

374. The Science of Poultry Production. (4:3:3) Johnston
Feeding, disease control, and business management.

378. The Production of Poultry Meat. (2:0:4) Johnston
Management, nutrition, and marketing of turkeys and broilers.

421R. Advanced Topics in Livestock and Meat Evaluation. (1:0:3 ea.) Prerequisites: An. Sci. 221; consent of instructor. Orme, Park
Advanced livestock and meat evaluation.

462. Reproductive Physiology of Domestic Animals. (3:2:2) Smith

464. Reproductive Physiology Laboratory. (2:1:3) Smith
Artificial insemination and pregnancy diagnosis.

492. Seminar. (1:1:0)

493R. (Ag. Econ.—AgHrt.—An. Sci.) Selected Agricultural Production Practices. (1-3:Arr.:Arr. ea.) Prerequisite: consent of instructor.
An extended field trip to acquaint students with agricultural-economic, animal, and agronomic and horticultural problems and practices in important commercial agricultural areas.

☐**Statistics 501, 502. Statistics for Research Workers I, II.** (5:4:3 ea.)

507. Animal Nutrition. (3:3:0) (m) Prerequisites: An. Sci. 207; Chem. 252 or equivalent. Recommended: Chem. 281. Gardner
Functions of nutrients in metabolism, measuring feed values, assessing nutrient requirements.

508. Animal Nutrition Laboratory. (2:0:6) Prerequisite: completion of or concurrent registration in An. Sci. 507. Gardner
Sampling methods, chemical analysis of feeds and blood, digestion trials; classical nutritional deficiencies, and research techniques are studied.

515. Genetics of Livestock Improvement. (3:3:0) Prerequisites: Bot. 370, Stat. 221 or equivalent.
Application of genetic principles for livestock improvement. Emphasis on selection methods and mating systems.

520. (Ag. Econ.—An. Sci.—Bot.) Management of Ranch Resources. (3:2:2) Prerequisites: senior or graduate standing and consent of instructor.
Team-taught. Commercial ranch case study. Management plan developed, consisting of maximum profit practices and enterprise combinations.

525. Plant Operations. (2-5:Arr.:Arr.) Prerequisite: consent of instructor.

☐**Statistics 531. Experimental Design.** (3:3:0)

560. Advanced Dairy Production. (3:3:0) Gardner
Includes the physiology and biochemistry of lactation, genetic improvement, dairy layout design, disease control, nutritional requirements. Offered 1975 and alternate years.

591R. Selected Topics in Animal Science. (½-2:Arr.:0)

595R. Special Problems in Animal Science. (1-2:Arr.:Arr.) Prerequisite: consent of instructor.

692R. Seminar. (1:2:0 ea.)

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

Anthropology and Archaeology

Professors: Christensen, Myers (Chairman, 150 MSRB).
Associate Professors: Berge, Matheny.
Instructor: John P. Hawkins.

Anthropologists study rituals and beliefs, systems of kinship and marriage, political and legal institutions, economics, languages, and other aspects of living human groups. The ultimate aim of these studies is the discovery of the common elements in the cultures of all societies or the regularities of human group behavior. Many anthropologists have a keen interest in applying this information to current human problems. Anthropologists also investigate the variations of man as a biological species, both from the evidence of his physical remains and from the evidence of the physical characteristics of living peoples. Anthropology, therefore, has affinities with both the biological and social sciences, but its dominant interest is in the workings of culture and the structure of society and it shares much of its theory and method with sociology and psychology.

Archaeologists, on the other hand, study the ways of life of past societies and the cultural history of man, through the evidence of his actual material remains—ruins, implements and pottery, ancient art works, monuments and tablets bearing inscribed records, etc. By means of such evidence, archaeologists are able to understand much of the unwritten past and the ancient historic periods. Archaeology, therefore, is both a social and a historical science and has much in common with documentary history, humanistic disciplines, and social science.

Anthropology and archaeology are closely related disciplines and complement each other in a number of ways. Anthropologists provide archaeologists with data and concepts helpful in interpreting the remains of ancient peoples. Archaeologists, in turn, supply anthropologists with evidences of the cultural patterns and physical variations of man.

Career Opportunities

Social anthropology is a behavioral science, and qualified persons in this field have found employment as college teachers; with governmental and commercial agencies (especially those operating in non-Western countries); and in personnel relations, hospital administration, social work, and advertising research. Professional qualifications as an anthropologist require graduate training, ideally to the Doctor of Philosophy degree. Students from this department with high academic standing have been admitted to graduate programs in some of the best graduate schools both in this country and abroad.

Archaeology offers professional careers as college teachers; as museum curators, directors, and technicians; with federal, state, and local survey and restoration projects; as state archaeologists; and in park and recreational operations. Most of these positions require graduate training at least to the master's degree. A considerable number of students graduating in archaeology have pursued advanced study at other universities.

Study in this department is designed primarily to prepare students for graduate work at other universities, although an increasing number of students are finding employment in these fields with the bachelor's or master's degree.

Departmental Programs

The successful completion of this major leads to the Bachelor of Science degree in anthropology and archaeology. Students majoring in this department are not required to have a minor field for graduation but will be counseled by their advisers (whom they are urged to consult early in their program and regularly thereafter) concerning complementary courses to be taken in other departments of the University. The department highly recommends that majors planning graduate study complete Engl. 316, Technical Writing.

The department emphasizes the fields of social anthropology, prehistoric archaeology, and historic archaeology, and the undergraduate curriculum is organized into four programs. Students choosing this major may select one of the following programs: general anthropology and archaeology, social anthropology, prehistoric archaeology, or historic archaeology.

General Anthropology and Archaeology. Students selecting the program in general anthropology and archaeology will prepare themselves with the broadest possible background offered at this university in social anthropology, physical anthropology, linguistics, prehistoric archaeology, and historic archaeology. Such a background is of value to students planning graduate work in schools stressing the global concept of anthropology and those planning to emphasize archaeology in their professional careers. This program requires a total of

36 semester hours of credit and must include Anthrop. 105 and 120, Ling. 324 or 325, 10 additional semester hours of anthropology credit; Archaeol. 101, 102 and 280 and 8 additional semester hours of archaeology credit.

Social Anthropology. A student who selects the program in social anthropology should plan to obtain a graduate degree at another university, ultimately to do a field-work project, and to become a professional social anthropologist. The program in social anthropology requires a total of 36 semester credit hours and must include Anthrop. 105, two courses from those numbered 317 through 355, two courses from those numbered 430 through 433, and two courses from those numbered 480, 481, and 490R. A bachelor's thesis is also required of all students in this program who plan to pursue graduate study. This thesis may grow out of a field experience in a rural village, among an American Indian people or with other ethnic groups, or it may be based on a library research project. These students should register for Anthrop. 499 during their senior year to obtain thesis credit. A student will be required to defend his thesis and may be granted from 1 to 3 credit hours for its successful defense. It is also suggested that majors in this program take Sociol. 411 and 552 and consider the offerings in Ling. 201, 301, and 325.

Prehistoric Archaeology. Students entering the program in prehistoric archaeology should plan to become professional anthropologists. Emphases in this program are on the culture history of the American Southwest and Mesoamerica. This program requires 36 hours of credit which must include Anthrop. 105 and 120; Archaeol. 101, 102, 155, 220R, 231, 241, 455R or equivalent field experience; and at least two upper-division courses in prehistoric archaeology. It is also recommended that students in this program take relevant courses in other departments chosen in consultation with their advisers.

Historic Archaeology. Students who select the program in historic (text-related) archaeology should plan to become historians as well as archaeologists. Special emphasis in this program is given to the fields of historic Near Eastern (particularly biblical) and historic Mesoamerican archaeology (the ancient history and civilizations of Middle America in the light of archaeology in conjunction with the early historical writings). This program requires 36 semester hours of credit and must include Archaeol. 101, 102, 155, 220R, 231, 241, and 280; at least three upper-division courses in historic archaeology; and Anthrop. 105 and 120. It is recommended that at least two courses be taken among the following in other departments: Hist. 110, 300, 304, and 307; Geog. 301; Relig. 501 and 514; Hebrew 101 and 102; Greek 101 and 102; and Latin 101 and 102.

Minors Offered

Minors in both anthropology and archaeology are offered for students majoring in other departments. An undergraduate minor in anthropology requires the completion of Anthrop. 105 and 120, either 480, 481, or 490R, and additional courses to make a total of 16 semester hours. An undergraduate minor in archaeology requires Archaeol. 101, 102, and 103 and 9 additional hours of archaeology credit.

Graduate Studies in Archaeology

The graduate major and minor in archaeology are also offered. The graduate major, leading to the Master of Arts degree, further prepares the student for teaching, research, and other employment in this field. The best preparation for a professional career in archaeology is the Doctor of Philosophy degree.

For the master's degree in archaeology, at least 15 semester hours of graduate credit are required in this subject, with at least 9 additional semester hours in a minor field approved by the department, as well as an acceptable thesis. For further information regarding the requirements for the master's degree in archaeology, see the **Graduate School Catalog.**

Courses not offered one year are normally given the next year.

Anthropology Courses

101. Introduction to Anthropology. (3:3:0) Home Study also. (G-SS) Matheny, Myers
Concept of culture, continuity of culture, human variation, primitive society, distribution of linguistic groups.

105. Introduction to Social Anthropology. (3:3:0) (G-SS) Myers, Hawkins
Development, scope, concepts, and methods. Principles of social organization: kinship, marriage, religion, values, social control.

120. Physical Anthropology. (3:3:0) Home Study also. (G-SS) Matheny
Human biology, with emphasis on fossil man and human variation.

☐**Linguistics 201. Navajo Language and Culture.** (3:3:0) (m) Prerequisites: Ling. 101, 102. Blair

☐**Linguistics 301A,B,C,D,E; 302A,B,C,D,E. Audio-Lingual Study of an Uncommon Language.** (4:4:2 ea.)

317. Native Peoples of North America. (3:3:0) (G-SS) Matheny, Myers
Adaptation to environment, social organization, beliefs, and values of North American Indians.

318. Native Peoples of Middle America. (2:2:0) (G-SS) Hawkins
A survey of the Indian peoples of Mexico, Central America, and the West Indies at European contact.

319. Native Peoples of South America. (2:2:0) (G-SS) Christensen
A survey of the Indian peoples of South America at European contact.

320. The North American Indian Today. (2:2:0) (G-SS) Myers
Present conditions and problems confronting major Indian groups in North America.

☐**Linguistics 324. Introduction to Linguistics (Traditional).** (3:3:0) Lytle

☐**Linguistics 325. Introduction to Linguistics (Modern).** (3:3:0) Baird

330. Peoples of Africa. (3:3:0) (G-SS) Myers
A sampling of peoples south of the Sahara. Ecology, social organization, beliefs, values.

340. Peoples of the Middle East. (3:3:0) (G-SS) Matheny
A survey of the peoples of the Middle East, with emphasis on social systems.

350. Peoples of South and East Asia. (3:3:0) (G-SS)
A survey of the peoples of south and east Asia, with emphasis on cultural traditions.

355. Chinese Culture and Society. (3:3:0) (G-SS) Recommended: Anthrop. 105.
An analytical survey of the social structure and nonmaterial culture of late traditional and modern China.

370. The American Culture. (3:3:0) (G-SS) Hawkins, Myers
Life in the United States, viewed in the light of methods and concepts of anthropology.

☐**English 391. Studies in Folklore.** (3:3:0)

430. Moral and Ritual Institutions. (3:3:0) (G-SS) Hawkins, Myers
Religion, magic, witchcraft, sorcery, divination, mythology, ritual and morality, cosmology, totemism, taboo, sacrifice. Comparative religion.

431. Systems of Kinship and Marriage. (3:3:0) (G-SS) Hawkins, Myers
The kinship system; kinship and social organization; underlying principles. Marriage forms, observances, and explanations.

432. Political and Legal Institutions—Primitive Peoples. (3:3:0) (G-SS) Hawkins, Myers
Stateless societies; primitive states; kingship, chief, leadership, councils; politics, law, ritual, and warfare.

433. Economic Institutions. (3:3:0) (G-SS) Hawkins, Myers
The social framework of production, consumption, and exchange in non-industrial societies. Technology, wealth, capital, labor, land tenure, property.

480. Theoretical Social Anthropology. (3:3:0) Hawkins, Myers
The development of scientific social anthropology since 1850, with emphasis on modern trends in theory.

481. Field Methods in Social Anthropology. (2:2:1) Hawkins, Myers
The interrelationship between field methods and theory; the development of field techniques; field excursion.

490R. Seminar. (2:0:0 ea.) (G-SS)

☐**Linguistics 493. Readings in Linguisitics.** (1-3:0:Arr.)

☐**Sociology 537. Rural Social Development in Latin America.** (2:2:0)

☐**Sociology 552. Personality: Culture and Society.** (3:3:0)

499. Bachelor's Thesis. (1-3:Arr.:Arr.)
Fieldwork in rural village or among ethnic group or completion of a library research project, writing and defense of thesis.

Archaeology Courses

101. Introduction to Archaeology: Old World. (3:3:0) Home Study also. (G-SS) Staff
Fundamentals of archaeology, and a survey of the known antiquities and archaeological history of the Eastern Hemisphere.

102. Introduction to Archaeology: New World. (3:3:0) (G-SS) Staff
Further on methods, and survey of the known antiquities and archaeological history of the Western Hemisphere.

103. Introduction to Archaeology: Field Methods. (1:1:0) Berge, Matheny
An initial study of archaeological tools and methods used in the field; three-day field trip. Fee.

155. Primitive and Ancient Technology. (2:1:2) Staff
The means by which material objects were produced in early times; experimental reproduction of artifacts.

220R. History and Theory of Archaeology. (2:2:0) Prerequisites: Archaeol. 101, 102. Berge
The development of archaeology as a scientific discipline; emphasis alternately on prehistoric and historic archaeology.

231. Survey and Excavation Techniques. (2:1:2) Prerequisite: Archaeol. 220R. Berge
Practical application of the techniques used by the archaeologist in the field.

241. Laboratory and Interpretative Methods. (2:1:2) Prerequisite: Archaeol. 231. Berge
Practical application of the techniques used by the archaeologist in the laboratory.

251. Bone Identification Laboratory. (2:1:2) Berge
Archaeological techniques for determining the identity, sex, and age of human skeletal remains.

280. Archaeology and the Scriptures. (3:3:0) (G-SS) Christensen
Introduction to study of the Hebrew-Christian and LDS scriptures in the light of archaeology.

300. Prehistoric Archaeology of the Old World. (3:3:0) (G-SS) Berge, Matheny
The culture-history of the Eastern Hemisphere to the rise of civilization.

310. Historic Near-Eastern Archaeology. (3:3:0) (G-SS) Prerequisite: Archaeol. 280. Christensen
Archaeology of the Near East studied for better understanding of ancient Near Eastern, especially biblical, history.

318. Classical Archaeology. (3:3:0) (G-SS) Christensen
The major excavations and antiquities of the Mediterranean region checking and illustrating Graeco-Roman history.

350. Archaeology of Middle America I. (3:3:0) (G-SS) Prerequisites: Archaeol. 280, 350. Matheny
The archaeological history of central Middle America, partially correlated with the chronicled history of pre-Spanish times.

355. Archaeology of Middle America II. (3:3:0) (G-SS) Prerequisites: Archaeol. 280, 350. Matheny
Further study of the archaeological and chronicled history of Mesoamerica, especially the "preclassic" (Book of Mormon) period.

365. Archaeology of South America. (3:3:0) (G-SS) Christensen
The archaeological history of South America—in Peru correlated with the chronicled history of pre-Spanish times.

375. Prehistoric Archaeology of North America. (3:3:0) (G-SS) Berge, Matheny
The prehistory of America north of Mexico.

380. Historical Archaeology of North America. (3:2:2) (G-SS) Berge
Techniques, data, and aims of archaeological research at historic North American sites.

415. Southwestern Archaeology. (3:2:2) (G-SS) Berge
The prehistoric culture-history of southwestern United States with emphasis on chronology and culture classification.

420. Archaeology of Utah. (3:3:0) (G-SS) Berge
Cultural developments in prehistoric and pioneer Utah, with emphasis on cultural chronology and classification.

455R. Field School of Archaeology. (6:8:15-25) Enrollment by application. Matheny
Training at field school in southeastern Utah in excavation and survey techniques and laboratory analyses. Fee.

470. Museology. (2:2:0) Berge
The analysis of the museum organization as an educational and research facility.

515. Advanced Southwestern Archaeology. (3:2:2) (G-SS) Matheny

545. Advanced Near-Eastern and Mediterranean Archaeology. (3:2:2) (G-SS) Christensen

555. Advanced Mesoamerican Archaeology. (3:2:2) (G-SS) Matheny

570. Advanced Museology. (3:1:4) Berge

580R. Advanced Theory and Research Design. (3:3:0)

590R. Seminar. (2:2:0)

610. Classification of Material Culture. (3:2:4)

671. Advanced Interpretative Methods. (2:2:2)

695R. Library Research. (2:0:6)

696R. Museum Studies. (2:0:6)

697R. Field Research. (1-10:0:9-30)

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

Art and Design

Professor: Breinholt, Darais, Gunn, Magleby, Turner, Weaver, Wilson
Associate Professors: Allen, Burnside, Johansen, Stout (Chairman, B-509 HFAC), Tippetts
Assistant Professors: Anderson, Fletcher, J. Marshall, R. Marshall, Raty, Rosine, Southey, Takasaki, Whitaker.
Instructors: Barsch, Hamilton, Hanks
Special Instructors: Edwards, Goodliffe, Griffin, Hadlock, Hatch, Maas, Magleby, Millard, Nackos, Riggs, Viehweg, Wade.

The Department of Art and Design is located in the Harris Fine Arts Center and three other buildings throughout the campus. The Harris Fine Arts Center also houses the B. F. Larsen Gallery, the Secured Gallery, and the Elbert H. Eastmond Special Collections room, which provide historical and contemporary displays of art.

The Department offers four degrees: Bachelor of Arts, Bachelor of Fine Arts, Master of Arts and Master of Fine Arts. The master's degrees are outlined in the **Graduate School Catalog.**

Bachelor of Arts Degree

A liberal arts degree is offered to students completing the University's general education requirements detailed in the General Education Requirements section of this catalog.

The Art and Design Department requirements for the B.A. degree are as follows:

Foundation—ArtDs. 116, 117 (taken in sequence)

Graphic Core—At least 9 hours from ArtDs. 327R, 333R, 341, 350R

Plastic Core—At least 6 hours from ArtDs. 356R, 358R, 359R, 361R

Art History—At least 12 hours (ArtDs. 311 and 312 recommended as preface courses)

Art Electives—At least 20 hours (Additional work is urged; see your adviser.)

Bachelor of Fine Arts Degree

A degree with emphasis on a professional specialty is offered to students to prepare them for a career in one of the disciplines of the arts. A student may enter the BFA program after successfully completing the foundation requirements and having his portfolio accepted by the faculty. Students should apply to enter the program before the end of their sophomore year so that two years of study can be completed before graduation. Before acceptance, a student must select a specialty; and after acceptance, he will be assigned to an adviser who will follow his progress throughout the program. In the senior year the student will complete a terminal project in the chosen area of concentration; that project may be retained by the department.

The Bachelor of Fine Arts student must meet the following general education requirements: English, 6 hours; P.E., 2 hours; Health 130, 2 hours; social science, 3 hours; biological science, 3 hours; physical science, 3 hours; Hist. 170, 3 hours; humanities, 6 hours (including 2 hours of literature).

Specialties offered in the BFA program under the art emphasis

Ceramics
ArtDs.: 116, 117, 311, 312, 320R, 356R, 359R, 420R, 459R, 497R

Crafts
ArtDs.: 116, 117, 311, 312, 320R, 321R, 350R, 356R, 359R, 361R, 420R, 461R, 462R, 497R, 499
Clo. and Text.: 221
Ind. Ed.: 100, 129

Painting
ArtDs.: 116, 117, 311, 312, 320R, 321R, 322R, 327R, 333R, 350R, 356R, 420R, 421R, 427R, 428R, 433R, 497R, 499

Printmaking
ArtDs.: 116, 117, 241, 311, 312, 320R, 321R, 322R, 327R, 333R, 350R, 356R, 361R, 420R, 421R, 428R, 450R, 497R, 499

Sculpture
ArtDs.:116, 117, 311, 312, 320R, 321R, 322R, 350R, 356R, 358R, 359R, 361R, 401, 412, 420R, 456R, 458R, 497R, 499
Zool.: 260

Specialties offered in the BFA program under the design emphasis

Graphic Design
ArtDs.: 116, 117, 241, 311, 312, 320R, 321R, 341, 350R, 420R, 441R, 497R, 499
Comms.:263, 272, 365, 366, 368
Ind. Ed.: 250, 452, 453

Illustration
ArtDs.: 116, 117, 241, 311, 312, 320R, 321R, 322R, 327R, 333R, 341, 342, 343, 344, 420R, 421R, 428R, 441R, 497R, 499
Comms.: 263, 366

Industrial Design
ArtDs.: 116, 117, 234, 236, 237, 241, 311, 312, 320R, 336, 337R, 350R, 361R, 412, 436R, 497R
Electives to be selected in consultation with adviser.

Photography
ArtDs.: 116, 117, 241, 311, 312, 320R, 341, 350R, 408 497R
Comms.: 110, 201, 263, 272, 365, 366, 368, 495R
Ind. Ed.: 453, 454
Theatre 271, 373
Physics: 177

Art Education

Prospective art teachers for secondary schools should be majors in the Art and Design Department under the College of Fine Arts and Communications. To coordinate the candidates' training and certification for teaching, supervision of records and program direction is under the TCO (Teacher Clearance Office). All departments, therefore, list their departmental offerings with the College of Education. Details for credentials and Art and Design Department requirements are listed in the catalog under Education Department.

Students majoring in art education may select either of two options.

1. Art education majors may complete a **composite teaching major** in art by selecting from three areas a dominant and two supporting fields of study: (1) drawing, painting, printmaking; (2) sculpture, ceramics, crafts; (3) graphic design, industrial design, photography.

   The student should note that at the present time, the state of California does not recognize the composite major.
2. Art education majors may elect an **art teaching major** supported by an approved minor in a department other than art.

An art minor is offered. Required classes are listed in the catalog under the Education Department.

The sequence of education courses begins with Ed. 301 in the second semester of the sophomore year, unless a special program is approved by the TCO. See details listed under Preparation for Secondary School Teachers in the Education section of this catalog. Students electing to complete the education requirements under I-STEP must have taken ArtDs. 337 **before** entering the program.

Art education majors may participate in the BFA program. It should be understood, however, that the BFA is a specialized course of study and does not provide the breadth of experience necessary for successful teaching in secondary schools. In consideration of this, the student should plan to complete any art education requirements not satisfied by the BFA program elected.

Courses Repeated for Credit

Course numbers followed with an R may be repeated for credit. The R classes are designed to offer a block of time for concentrated study toward maturity in one of the fields of concentration.

Grading Policies

The faculty of the department have been chosen because of their professional expertise and background. The majority of the classes offered by the department are studio classes and, as such, will be structured to encourage the students to create artistic work at the upper limits of their capabilities. Grading of creative work will be based on a professional evaluation by the faculty member concerned. Courses receiving a D grade cannot be applied toward major credit.

Courses

101. Introduction to Art. (2:2:0) (G-HA) Turner
Introduction to basic understanding in art processes through lectures, demonstrations, and studio and gallery visits.

102. Basic Design for Nonmajors. (2:1:3) Home Study also. (G-HA) Darais, Riggs, Takasaki
Introduction to the basic principles and elements of all artistic and design efforts.

103. Drawing for Nonmajors. (2:1:3) Home Study also. (G-HA) Takasaki
Introduction to basic drawing techniques.

104. Sculpture for Nonmajors. (2:1:3) (G-HA) Anderson
Introduction to basic techniques of modeling clay and plaster.

105. Ceramics for Nonmajors. (2:1:3) (G-HA) Wilson
Basic techniques in forming, glazing and firing pottery objects.

106. Crafts for Nonmajors. (2:1:3) (G-HA) Weaver
Introduction to various media and methods used to create craft objects.

107. Painting for Nonmajors. (2:1:3) (G-HA) Raty
Introduction to basic media and techniques of painting.

109. Design for Technology. (2:2:2) (G-HA) Hanks
Basic design principles as related to industrial art and technology.

110. Design in Everyday Life. (2:3:0) Home Study also. (G-HA) Raty, Takasaki, Tippetts
A study of good taste and sensitivity to design in contemporary life.

116. Foundation I. (5:2:8)
Foundation course in theory and application of principles and practices related to art and design.

117. Foundation II. (5:2:8) Prerequisite: ArtDs. 116.
Further study in theory and application of principles and practices related to art and design.

205R. Advanced Ceramics for Nonmajors. (2:1:3 ea.) (G-HA) Wilson
Further experience in more advanced techniques of creating pottery.

206R. Advanced Crafts for Nonmajors. (2:1:3 ea.) (G-HA) Weaver
Further experience in more advanced craft techniques.

207R. Advanced Painting for Nonmajors. (2:1:3 ea.) (G-HA) Raty, Rosine
Advanced painting techniques.

226. Art Education for Teachers of Exceptional Children. (3:2:2) Tippetts
Art education theory; aesthetic experiences and art activities for teachers in special education.

234. Philosophy of Contemporary Design. (3:3:0) Baughman
Survey of contemporary architecture and design with discussion of environmental problems within the community.

235. Synthesis of Design. (3:2:0) Baughman
Discussion of interrelatedness of environmental studies and design and various professional specializations.

236. Contemporary Industrial Design. (2:4:0) Prerequisites: ArtDs. 116, 117. J. Marshall
Survey of industrial design in modern society. Stimulation of functional and aesthetic awareness.

237. Presentation I. (3:2:3) Prerequisites: ArtDs. 116, 117.
Perspective drawing. Beginning presentation of methods and media, with an emphasis on interior and exterior.

241. Design in Layout and Lettering. (2:4:0) Home Study also. Prerequisite: ArtDs. 116, 117.
Basic skills in lettering and designing for commercial purposes.

302. Oriental Art. (2:2:0) (G-HA) Burnside, Takasaki
A survey of the major periods and dynasties of the Orient from ancient to modern times.

311. Survey of Art and Architecture. (3:3:0) (G-HA) Gunn, Fletcher
A survey of art and architecture of the Western world, covering periods from Primitive to Renaissance.

312. Survey of Art and Architecture. (3:3:0) Home Study also. (G-HA) Gunn, Fletcher
A survey of art and architecture of the Western world, covering periods from Renaissance to Contemporary.

320R. Fundamentals in Design. (3:4:0) Prerequisites: ArtDs. 116, 117. Darais, Magleby
Emphasis on art structure as essential to self-expression. Study of significant examples of art history.

321R. Fundamentals in Drawing. (3:4:0) Prerequisites: ArtDs. 116, 117. Darais, Johansen
Drawing as a graphic form of self-expression. Emphasis on the personal statement in response to various experiences and motifs.

322R. Fundamentals in Figure Drawing. (3:4:0) Prerequisites: ArtDs. 116, 117. Gunn, Johansen, Magleby
Work in drawing the human figure, with emphasis on structure and individuality of expression.

324. Recreational Art-Crafts. (2:2:1) Tippetts
Creative approach to crafts, design, lettering, weaving, papier-mâché clay, puppetry, etc. Theory of art education for camp and playground.

326. Art for Elementary Teachers. (4:3:4) Allen, Tippetts
Role of art in public schools; basic art education theory, classroom activities, and aesthetic experiences for teacher growth.

327R. Fundamentals in Oil Painting. (3:4:0) Prerequisite: ArtDs. 117. Magleby, Breinholt
Oil painting from landscapes and still-life objects, with emphasis on developing the individual expressive capacity of the student.

333R. Fundamentals in Watercolor. (3:4:0) Prerequisite: ArtDs. 117. R. Marshall, Turner
Development of basic skills in watercolor paintings from landscape and still-life objects. Emphasis on the use of transparent watercolors.

336. Industrial Design. (2:4:0) Prerequisites: ArtDs. 116, 117, 234, 236; Ind. Ed. 100, 129; Des. Tech. 111. Hanks, Stout
Planning and making of products. Emphasis on functional improvement and visual appeal.

337R. Presentation II. (3:2:2 ea.) Prerequisite: ArtDs. 237.
Advanced media techniques. Emphasis on interior environment and product presentation.

341. Layout. (3:3:0) Prerequisite. ArtDs. 241. Whitaker
Creation of the idea and organization of visual elements for commercial design.

342. Illustration. (2:3:0) Prerequisites: ArtDs. 241, 321R, 322R. Whitaker
Introduction to editorial and advertising illustration; exploration of tools and media; visualization of the idea; approaches to rendering.

343. Fashion Illustration. (2:3:0) Home Study also. Prerequisites. ArtDs. 241, 321, 322. Whitaker
Introduction to fashion illustration. Gesture, proportion, and effective linear expression of the fashion figure. Development of individual style.

344. Commercial Art Techniques. (2:2:2) Prerequisite: ArtDs. 341. Whitaker, Wade
Study of standard and experimental procedures utilized in the production of commercial art.

350R. Fundamentals in Printmaking. (3:4:0) Prerequisite: ArtDs. 117. Barsch
Relief and intaglio fine printmaking, based on traditional and contemporary concepts, materials, and procedures.

356R. Fundamentals in Sculpture: Modeling and Carving. (3:4:0) Prerequisite: ArtDs. 117. Anderson, Hadlock, Smith
Intensified study in large dimension of the human figure. Emphasis on clay modeling, armature building, and plaster casting of clay models.

358R. Fundamentals in Sculpture: Construction and Fabrication. (3:2:4) Prerequisite: ArtDs. 117. Johansen, Nackos
Initial study and practice in fabrication and construction using a variety of materials such as metals, plastics, and wood.

359. Fundamentals in Ceramics. (3:4:0) Prerequisite: ArtDs. 117. Weaver, Wilson
Basic methods of creating functional and expressive objects from clay. Construction, throwing, glazing, and firing objects.

361R. Fundamentals in Crafts. (3:4:0) Prerequisites: ArtDs. 116, 117. Weaver
Creative design in metal, wood, leather, mosaic, textile, and other media.

377. Basic Classroom Procedures. (3:3:0) Prerequisite: Ed. 301. Allen, Breinholt, Tippetts

390. Color. (2:2:0) Magleby

400R. Individual Study in Art History. (1-2:Arr.:Arr. ea.) (G-HA) Prerequisite: consent of instructor. Burnside, Fletcher, Gunn, Hamilton
Individual studies on specific problems in art history.

401. Ancient and Primitive Art. (2:2:0) (G-HA)
History of ancient art: Egypt, Mesopotamia, and Greece. Primitive sculptures: African Negro, Pacific Islands, American Indian, and Pre-Columbian.

402. Classical Art. (2:2:0) (G-HA) Gunn
History and appreciation of Greek and Roman art, with consideration of the formative cultures.

404. Medieval Art. (2:2:0) (G-HA) Burnside
Study of the major medieval monuments in architecture, sculpture, and painting from the early Christian through the Romanesque and Gothic periods.

406. Renaissance Art. (2:2:0) (G-HA) Fletcher
A study of the major artists, monuments, and influences of the Renaissance.

407. Northern Renaissance. (2:2:0) (G-HA) Burnside
Taught alternate years with Art 406. Considers art from Van Eyck to Bruegel.

408. Baroque Art. (2:2:0) (G-HA) Burnside
History and appreciation of baroque painting, sculpture, and architecture.

410. American Art. (2:2:0) (G-HA) Burnside, Fletcher
A survey of American painting, architecture, and sculpture from the seventeenth century to the present.

411. Nineteenth-Century European Art. (2:2:0) Home Study also. (G-HA) Fletcher
History and appreciation of nineteenth-century art in Europe and America.

412. Contemporary Art. (2:2:0) (G-HA) Fletcher
The rise and progress of contemporary art in Europe and America.

415R. Special Topics. (2:2:0 ea.) (G-HA)
Topics of special student interest, centered on strengths of visiting faculty, BYU Study Abroad Programs, or other significant art history projects of a group nature.

420R. Design Studio. (3:1:5 ea.) Prerequisite: ArtDs. 320R. Darais, Magleby
Advanced design problems in various media.

421R. Drawing Studio. (3:1:5 ea.) Prerequisite: ArtDs. 321R or 322R. Johansen, Rosine
Development of individual expressive strengths.

422R. Figure Drawing Studio. (3:1:5 ea.) Prerequisite: ArtDs. 322R. Johansen, Southey
Development of individual drawing skill.

426. Advanced Arts and Crafts for Elementary Teachers. (2:1:3) Prerequisite: Art. 326. Allen, Tippetts
Further study of the role of art in public schools.

427R. Advanced Oil Painting Studio. (3:1:5 ea.) Prerequisite: ArtDs. 327R. Magleby, Rosine, Southey, Turner
Advanced work in painting.

428R. Figure Painting Studio. (3:Arr.:Arr. ea.) Prerequisites: ArtDs. 322R, 327R. Southey, Whitaker
Oil painting from the model, with emphasis on design and development of an expressive style.

429R. Landscape and Still Life Studio. (3:1:5 ea.) Prerequisite: ArtDs. 327R. Breinholt, Turner
Emphasis on individual expressive creativity.

433R. Watercolor Studio. (3:1:5 ea.) Prerequisite: ArtDs. 333R. R. Marshall, Turner
Advanced work in watercolor theory and practice. Opportunities for projects in various aqueous media.

436R. Advanced Industrial Design. (4:2:6 ea.) Prerequisites: ArtDs. 237, 336; consent of instructor. Hatch, Marshall, Stout, Van Skyhawk
Advanced work in all phases of design, with specialization in product, transportation, and environmental areas.

441R. Graphic Design Studio. (3:1:5 ea.) Prerequisites: ArtDs. 341, 342. Whitaker
An extension of the individual's specific interests and needs, as applied to practical problems in the field of commercial art.

450R. Printmaking Studio. (3:1:5 ea.) Prerequisite: ArtDs. 350R. Barsch, Myer
Specialization in significant sculptural form. Investigation into media, deeper reading, and development of professional style are expected.

451R. Printmaking Studio: Lithography. (3:2:4) Prerequisite: ArtDs. 350R. Barsch, Myer
Concentration on lithography and silk screen, based on traditional and contemporary concepts, methods, and materials.

456R. Sculpture Studio: Carving. (3:1:5 ea.) Prerequisite: ArtDs. 356R. Anderson, Johansen
Methods of creating expressive sculptural forms, with emphasis on direct process of carving.

458R. Sculpture Studio: Metal. (3:1:5 ea.) Prerequisite: ArtDs. 356R. Anderson, Johansen
Emphasis on the lost wax process and techniques of metal constructions. Repeat for advanced specialization in significant sculptural form.

459R. Ceramic Studio. (3:1:5 ea.) Prerequisite: ArtDs. 359R. Weaver, Wilson
Studio experiences for advanced students. Experimental and exploratory research concerned with clay bodies and glazes from local resources.

461R. Crafts Studio. (3:1:5 ea.) Prerequisite: ArtDs. 361R. Weaver
Advanced exploratory problems in design involving craft materials of various kinds.

462R. Crafts Studio: Metal and Jewelry. (3:2:4) Prerequisite ArtDs. 361R. Weaver
Creative design in copper, silver, and other materials used in etching, enameling, forming, modeling, casting, etc.

479. Secondary Student Teaching. (4-8:3:0) Prerequisite: ArtDs. 377. Breinholt, Tippetts

494R. Special Problems in Art and Design. (1-2:2:2) Prerequisite: consent of instructor.
Individual study in area of special interest.

497R. BFA Final Project. (2:Arr.:Arr.) Prerequisite: consent of BFA adviser. R. Marshall, England
Advanced individual project with minimum instructor guidance. Student must show a high degree of competence within his discipline.

498. Readings (Honors). (2:Arr.:Arr.)

499. Readings. (2:Arr.:Arr.)
Selections from the great literature in art.

500. Philosophy of the Fine Arts. (2:2:0) Recommended: Phil. 213 and any of the art appreciation classes, or Hum. 101.
Lecture and seminar for majors in fine arts.

518. Architectural Mural Media. (2:2:2) Prerequisites: ArtDs. 320R, 321R or 322R, 327R. Magleby
Historical backgrounds; studio work in design; execution of murals.

578R. Art Education Studio. (1-3:1:5 ea.) Allen, Breinholt, Tippetts
Curricula and projects in art education.

595R. Seminar. (1:0:2 ea.)
Student and faculty analysis of curricula relationships; projection of student objectives; contemporary topics; visits to current exhibits.

600R. Individual Study in Art History. (2-8:Arr.:Arr. ea.) Burnside

618R. Advanced Architectural Mural Media. (2-8:Arr.:Arr. ea.)

620R. Advanced Design. (2-8:Arr.:Arr. ea.) Prerequisite: ArtDs. 420R. Darais, Magleby

621R. Advanced Drawing. (2:2:2 ea.) Magleby

622R. Advanced Figure Drawing. (4:4:4 ea.) Prerequisite: ArtDs. 621R.

627R. Advanced Painting. (2-8:Arr.:Arr. ea.) Prerequisite: ArtDs. 427R. Magleby

633R. Advanced Watercolor. (2-8:Arr.:Arr. ea.) Prerequisite ArtDs. 433R. Turner

636R. Advanced Industrial Design. (2-8:Arr.:Arr. ea.) Prerequisite: ArtDs. 436R.

641R. Advanced Graphic Design. (2-8:Arr.:Arr. ea.) Prerequisite: ArtDs. 441R.

650R. Advanced Printmaking. (2-8:Arr.:Arr. ea.) Prerequisite: ArtDs. 450R. Myer

656R. Advanced Sculpture. (2-8:Arr.:Arr. ea.) Prerequisite: ArtDs. 456R. Johansen

659R. Advanced Ceramics. (2-8:Arr.:Arr. ea.) Prerequisite: ArtDs. 459R. Wilson

661R. Advanced Crafts and Advanced Metal. (2-8:Arr.:Arr. ea.) Prerequisite: ArtDs. 461R. Weaver

677. Survey of Recent Studies in Art Education. (2:2:0) Breinholt, Gunn

679. Advanced Arts and Crafts for Elementary Teachers. (2:2:1) Prerequisite: consent of instructor.

690. Color. (2:2:0)

695R. Seminar. (1:1:0 ea.)

697R. MFA Project for Master's Degree. (2-8:Arr.:Arr. ea.)

699. Thesis for Master's Degree. (6-8:Arr.:Arr.)

Asian Studies

Professors: Farnsworth, Hillam, Hyer, Jagchid, Palmer (Coordinator, 121 FOB).
Associate Professors: Britsch, Williams.
Assistant Professors: Beaman, Browning, Horiuchi, Montgomery, Nanto, Takasaki.
Instructors: Eubank, Higgens, Muranaka, Lee.

The Asian Studies Program is an interdisciplinary program offering a concurrent major or an Asian studies minor which, in combination with a major from another department, leads to the B.A. degree. In addition to the undergraduate major, the Asian Studies Program also provides work leading to the M.A. degree.

The program is designed to prepare students for careers and advanced study in the specialized field of Asia not provided by a major in one department. In the program, students acquire working competence in either Chinese, Japanese, Korean, or another specially approved Asian language; a broad knowledge of Asian civilization; and a more specialized knowledge in an academic discipline. The program is intended for those students who wish to make an intensive study of the cultural history, modern development, and problems of Asia. It applies the techniques of and acquaints students with the contributions of the humanities and the social sciences. The major as outlined is useful to students contemplating careers in academic areas, private industry, or government service. The import-export field and international services are particularly interested in persons who have a strong background in Asian studies. Students may enter the program only with the approval of the Asian Studies Committee and should register each semester thereafter under its direction.

With the approval of the coordinator, special subject tracks, such as Asian religion and Asian business and economic developments, can be arranged. Students wishing to emphasize Near Eastern studies should consult with Professor Montgomery, who will assist in working out a suitable program.

Graduate Studies

A concurrent M.A. degree program and a graduate minor in Asian studies are offered. For detailed information consult the **Graduate School Catalog.**

Requirements for a Major

Asian studies majors are generally required to undertake a concurrent major in a regular discipline. Exceptions must be considered by the program coordinator and/or the Asian Studies Committee. Requirements are as follows:

1. Core courses dealing directly with Asia from three fields outside the regular major .... 14 hrs.
2. Elective courses dealing more generally with Asia from fields outside the regular major .... 3 hrs.
3. Language Requirement .... 20 hrs.
   A. Nonlanguage majors
      Chinese, Japanese, or Korean language .... 20 hrs.
      Other Asian languages from South, Southeast, and Central Asia will be considered in individual cases. (This includes 12 hours applied to the general education requirements of the University.)
   B. East Asian language majors. The 20 hours are to be divided as follows:
      (1) 101, 102 from major language .... 8 hrs.
      (2) Additional Asian language or courses from the list below .... 12 hrs.
      20 hrs.
4. Senior Seminar in Asian Studies .... 3 hrs.

Requirements for a Minor

A total of 14 hours (in addition to a regular major and 12 hours of an Asian language, equivalent to the bachelor's degree requirements) divided as follows:

1. Core courses (starred in list below) .... 8 hrs.
2. Elective courses (including 3 hours of language study) .... 6 hrs.

List of Courses

Anthropology
105 (3) Introduction to Social Anthropology
*350 (3) Peoples of South and East Asia
*355 (3) Chinese Culture and Society

Art and Design
*302 (2) Oriental Art
415R (2 ea.) Special Topics

Business Management
430 (3) Introduction to International Business

Classical Civilization
*342 (2) Oriental Mythology

Economics
330 (3) Economic Development
530 (3) Advanced Economic Development
*535R (3 ea.) Economic Problems of Selected Areas (Asia)

Geography
120 (3) Geography and World Affairs
*470 (3) Asia
*502R (2 ea.) Seminar in Regional Geography

History
*340 (3) Premodern Asia
*341 (3) Modern Asia
*342 (3) Korea
*343 (3) Formative Period of Chinese Civilization
*344 (3) Modern China
*345 (3) Premodern Japan
*346 (3) Modern Japan
*347 (3) India
*348 (3) Southeast Asia
*349 (3) Asiatic Russia
*440 (3) Communist China
*445 (3) History of Asian Religions and Thought

Language

Chinese (Mandarin)
101, 102 (4 ea.) First-Year Mandarin
201 (4) Intermediate Modern Chinese I
211 (2) Second-Year Conversation
301 (4) Intermediate Modern Chinese II
311 (2) Third-Year Conversation
321, 322 (3 ea.) Selected Readings and Composition
*342R (3 ea.) Chinese Literature in Translation
441, 442 (4 ea.) Classical and Documentary Chinese
443 (4) Modern Chinese Literature
444 (4) Readings in Chinese Social Sciences
445 (3) Chinese Civilization
490R (1-3 ea.) Individual Study in Chinese
495 (2) Senior Seminar for Majors

Japanese
101, 102 (4 ea.) First-Year Japanese
201 (4) Second-Year Japanese
211 (2) Second-Year Conversation
301 (4) Third-Year Japanese
311 (2) Third-Year Conversation
321, 322 (3 ea.) Selected Readings and Composition
443, 444 (3 ea.) Modern Japanese Literature
490R (1-3 ea.) Individual Study in Japanese
495 (2) Senior Seminar for Majors

Korean
340 (4) Introduction to Korean Literature

Political Science
150 (3) Introduction to Comparative Political Systems
170 (3) Introduction to International Politics
*350R (3 ea.) Communist Politics
*351R (3 ea.) Parliamentary Politics
*352R (3 ea.) Third-World Politics
*359R (3 ea.) Topics in Comparative Politics
377R (3 ea.) Foreign Relations
*378R (3 ea.) International Systems
501R (3) Advanced Topics

Religion
*351 (2) Mormonism and the World's Religions
*555 (2) Comparative World Religions
*556 (2) Comparative World Religions
*559 (2) The Church in Asia

Courses

101. Introduction to Asia. (3:3:0) (G-SS)
A topical introduction to Asian culture and civilization, approached from the standpoint of geography, history, politics and government, religion and thought, anthropology, art, and literature.

499. Senior Seminar in Asian Studies. (3:3:0)
Sources, materials, and methods of research and writing, including critical analysis of research project. Required of all Asian majors in the senior year.

501. Intensive Introduction to Asian Studies for Teachers. (3:3:0)
Readings, lectures, and individual study to assist public school teachers to integrate Asian studies into the curriculum of social studies, world history, and geography. To A.D. 1600.

502. Intensive Introduction to Asian Studies for Teachers. (3:3:0)
Readings, lectures, and individual study designed to assist public school teachers to integrate Asian studies into the curriculum of social studies, world history, and geography. Since A.D. 1600.

Biological and Agricultural Education

Coordinator: Allen (301 WIDB).

Courses

200. Principles of Biology. (3:3:0) (G-BS)
Introductory course for general education students.

400R. Independent Study for Premedical Students. (1-9:0:Arr.)
Independent work-study experience in a hospital setting, designed to acquaint premedical students with the medical profession. Acceptance into, and supervision of, the one-semester, full-time program is by the premedical committee and the hospital personnel.

Botany and Range Science

Professors: Andersen, Harper (Chairman, 401 WIDB), Harrison (emeritus), Hess, Julander (emeritus), Moore, Murdock, Stutz, Vallentine, Weber, Welsh.
Associate Professors: Smith, Tidwell, Whitton.
Assistant Professors: Brotherson, Rushforth, Wood.
Instructors: Liechty, Van Cott.
Collaborators: Felker, Frischnecht, Holmgren, Plummer, Thornock, Ware.

The Department of Botany and Range Science offers undergraduate and graduate training in plant science and in range science. Three professional undergraduate curricula are offered: (1) one in botany; (2) one for prospective biology teachers; and (3) one in range science, with the option of specializing either in range resources, agribusiness, or wildland recreation. Students completing these programs are awarded the Bachelor of Science degree in botany or in range science. A two-year pre-forestry option is also offered.

Graduate training leading to the Master of Science and the Doctor of Philosophy degrees is available for those who qualify for admission to the Graduate School. For details, see the **Graduate School Catalog.**

Botany

The botany curriculum offers professional training which will qualify the student for a wide range of careers relating to the study, culture, and utilization of plant life. Students trained in botany find career opportunities in governmental services, in industry, in secondary schools, in colleges and universities, and in research institutions. They are employed as teachers, conservationists, geneticists, plant breeders, plant physiologists, mycologists, plant quarantine inspectors, taxonomists, museum curators, park naturalists, park rangers, and as agriculturists. All courses in botany except 161, 469, and 480 satisfy general education requirements in biological science.

The following degrees are offered in botany: Bachelor of Science, Master of Science, Master of Science—Biological Education, Master of Science—Botany-Genetics, and Doctor of Philosophy—Botany, Doctor of Philosophy—Botany-Genetics.

Required and Recommended Courses for Botany Majors

Students may choose either a general or a technical option within the botany major. The general option is intended for students seeking botanical-technician positions with federal agencies or with private industry. Students anticipating graduate work or dental or medical school should satisfy requirements for the technical option. Required courses for the two options are listed below.

Electives from the following list are recommended:
AgHrt. 282, Micro. 321, 322; Chem. 223, 353, 385; Geog. 401; Geol. 101, 103; Math. 112, 113; Stat. 221, 501; Zool. 202, 203, 261, 331, 371; Bot. 205, 378, 400, 480.

Botany Minor

The requirement for a minor in botany may be fulfilled with a minimum of 18 hours of credit in botany and/or genetics courses. Recommended courses are Bot. 101 or 105, 372; Bot.-Zool. 276.

Composite Teaching Major in Biology

Students majoring in botany who wish to certify as secondary school biology teachers may do so by completing the required courses for the composite biology teaching major as outlined below, plus Bot. 377 and 479. No grade lower than C- will be accepted toward the fulfillment of these requirements.

Required Courses in Biology (48 hours):
Bot.-Micro.-Zool. 201; Micro. 331; Bot. 105, 205, 210, 350, 370, 440; Zool. 202, 203, 325, 331, 460 (or 461); Geol. 103.

Recommended Courses in Biology:
Bot.-Zool. 250 or Bot. 400; Micro. 411; Bot. 321, 325; Zool. 344.

Recommended Supporting Courses in Other Areas:
Any of the following supporting courses may also be used to fulfill the 12-hour requirement in the physical science and the math.-science-logic areas:
Math. 105*; Chem. 102*, 103, 281*, 284; Physics 100 or 105, 106, 107, 108; AgHrt. 102, 282.

*These courses are prerequisites for required biology courses.

Preforestry

Students may prepare themselves for further training in forestry by taking basic science and general education courses during their first two years of college work. The preforestry program at Brigham Young University is under the supervision of the Department of Botany and Range Science. Upon completion of this program, students may enroll in a professional forestry school for their major work.

Courses

101. Plant Biology. (3:2:2) (G-BS m)
The study of life, using plants to illustrate life processes and structures.

Required Courses	General Option	Technical Option
Botany	201, 210, 321, 332, 335 (or 331), 350 (or 453), 370, 372, 440, 455 (or equivalent), 491R	201, 210, 332 (or 335), 350, 370, 440, 491R
Mathematics	105, 106, or 111	109 and 105, 106, or 111
Physics		201, 202
Chemistry	102, 103, 281	105 and 106 (or 111 and 112), 351 and 352 (or 252 and 481)
English	111 and 215	111 and 215
Zoology		371

105. Plant Kingdom. (3:2:2) (G-BS m)
Morphology of representatives of the plant kingdom.

161. Introduction to Forestry. (3:3:0) Wood
Forestry and its relationship to other wild-land uses. (Field trip to be arranged.)

201. (Bot.-Micro.-Zool.) Introduction to Biology. (4:5:0) (G-BS) Prerequisites: Chem. 105 and concurrent registration in Chem. 106.
Introduction to basic principles of biology. Offered for majors and minors in biology.

205. Field Botany. (3:2:4) (G-BS m)
A study of the common trees and shrubs and their uses.

210. Plant Classification. (3:2:3) (G-BS m) Home Study also. Prerequisite: Bot. 101 or 201. Welsh, Wood
General principles of taxonomy and use of manuals, with emphasis on classification of temperate flora.

250. (Bot.-Zool.) Environmental Biology. (3:3:0) Home Study also. (G-BS m)
Ecological concepts and the environmental impact of man. For non-biology majors.

276. (Bot.-Zool.) Heredity. (3:3:0) Home Study also. (G-BS m) Prerequisites: Bot. 101 or 105 or Zool. 105 or equivalent.
Principles of inheritance for non-science majors.

321. Plant Anatomy. (3:1:5) (G-BS m) Prerequisite: Bot. 101 or 201 or equivalent. Rushforth, Tidwell

325. General Cytology. (3:2:3) (G-BS m) Prerequisite: Bot. 101 or 201. Moore, Whitton
The organization and function of cells.

331. Nonvascular Green Plant Morphology. (3:2:3) (G-BS m) Prerequisite: Bot. 101 or 201 or equivalent. Rushforth, Tidwell
Structures, life histories, and relationships of algae and bryophytes.

332. Vascular Plant Morphology. (3:2:3) (G-BS m) Prerequisite: Bot. 101, 105, or 201, or equivalent. Rushforth, Tidwell
Structures, life histories, and relationships of vascular plants.

335. Mycology. (3:1:6) (G-BS m) Prerequisite: Bot. 101 or 201. Rushforth, Weber
A study of fungi.

350. (Bot.-Zool.) General Ecology. (3:2:3) Prerequisites: Bot. 101 or 201.
Ecosystem structure and function, interspecific relations, environment and life, and community development.

351. (Bot.-Zool.) Natural History for Elementary Teachers. (3-4:3:0-2) Home Study also. (G-BS) Prerequisites: basic college course in biology; (with the 4-credit-hour option) concurrent registration in Bot.-Zool. 352.
May not be used for credit towards a degree in a biological science department.

352. (Bot.-Zool.) Natural History Workshop. (2:0:4) (G-BS) Prerequisite: concurrent registration in Bot.-Zool. 351.
Practical application and interpretation of contemporary problems and principles of natural history as taught in Bot.-Zool. 351 for elementary teachers.

370. Principles of Genetics I. (2:2:0) (G-ML) Prerequisite: Bot.-Micro.-Zool. 201. Andersen, Stutz, Whitton
Basic concepts of genetics with emphasis on the implications of sexual reproduction.

372. Evolutionary Genetics. (2:2:0) (G-ML m) Prerequisite: Bot. 370. Andersen, Stutz, Whitton
A study of population genetics particularly in relationship to evolutionary forces which change gene frequencies.

377. (Bot.-Zool.) Secondary Teaching Procedures in Biology. (3:3:1) Prerequisite: Ed. 301.
For course description see Ed. 377. Required of biology teachers.

378. (Bot.-Zool.) Genetics Laboratory. (1:0:3) (m) Prerequisite: completion of, or concurrent registration in, Bot. 370.

400. Conservation of Natural Resources. (2:2:0) Home Study also. (G-BS m) Moore, Murdock, Vallentine
Need for and means of providing conservation of renewable natural resources. (Field trip to be arranged.)

440. Plant Physiology. (4:3:3) (G-BS m) Prerequisites: Bot. 101 and college chemistry. Recommended: Chem. 281 or 351 and 352. Moore, Smith
Water relations, mineral nutrition, synthesis of foods, digestion, respiration, and growth and reproduction of plants.

453. Autecology. (3:2:3) (G-BS m) Recommended: Botany 440. Murdock, Wood
The relationships of plants to specific factors of the environment. Field trip to be arranged.

455. Field Ecology. (2:1:Arr.) (G-BS m) Prerequisite: consent of instructor. Brotherson, Harper, Murdock, Vallentine, Wood
Field methods in plant ecology and range management. (Includes one field trip of about one week's duration.)

469. Forest Management. (3:3:0) Field trips to be arranged.

479. (Bot.-Zool.) Secondary Student Teaching. (4-8:0:20-40) Prerequisite. Bot.-Zool. 377.
For course description see Ed. 479. Required of biology teachers.

480. Plant Pathology. (3:2:3) (m) Prerequisite: Bot. 105. Hess, Weber
Important plant diseases—their identification, causes, and methods of control. Offered 1975 and alternate years.

491R. Seminar. (1:1:0 ea.) (m)

498R. Special Problems. (1-3:0:3-9 ea.)

501. Histological Technique. (2:0:6) Prerequisite: Bot. 101 or Zool. 105. Moore
Techniques of preparing plant tissues for microscopic examination. Offered 1975 and alternate years.

510. Advanced Taxonomy. (3:2:3) (One three-day field trip to be arranged.) Prerequisites: Bot. 210 or consent of instructor. Welsh

515. Agrostology: Taxonomy and Ecology of Grasses. (3:2:4) Prerequisite: Bot. 210. Brotherson
Classification and ecology of grasses, with emphasis on important forage species. Offered 1976 and alternate years.

522. Biological Instrumentation. (3:1:6) (m) Prerequisite: graduate status or permission of instructor. Weber
Theory and application of research instruments to biological problems.

526. (Bot.-Zool.) Cell Biology. (4:3:3) (m) Prerequisite: Introductory course in biochemistry. Andersen, Farmer, Hess, Whitton
Molecular physiology and ultrastructure of cells, with emphasis on eucaryotic organisms. Offered 1976 and alternate years.

533. Algology. (3:2:3) Prerequisite: Bot 331 or consent of instructor. Rushforth
A detailed study of the algae, including classification and morphology.

535. Advanced Mycology. (4:2:6) Prerequisite: Bot. 335 or equivalent. Weber
A detailed study of taxonomy and morphology of special groups. Offered 1976 and alternate years.

539. Palaeobotany. (3:2:3) Prerequisites: Bot. 101 or 105, Geol. 103. Tidwell

550. North American Floristic Elements. (3:2:3) Welsh
The distribution of plant species and communities in the light of present and past climates. Offered 1975 and alternate years.

551. Quantitative Ecology. (3:1:6) Prerequisites: Bot. 350 or 453, Stat 221 or 501. Harper
Methods used in community analysis.

552. (Bot.-Zool.) Terrestrial Ecosystems. (4:3:Arr.) Prerequisites: Bot.-Zool. 350, Stat. 221 or 501.
Biotic communities of the earth; population dynamics; reproductive, lifeform, and longevity patterns; species interactions; and structure, dynamics, and evolution of communities. Extended field trip.

555. (Bot.-Zool.) Aquatic Ecosystems. (3:2:3) Prerequisites: Bot.-Zool. 350 or equivalent; Stat. 221 or 501. Barnes, Rushforth
Analysis of lake and stream ecosystems. Three Saturday field trips. One extended field trip.

610. Botanical Terminology and Nomenclature. (2:2:0) Prerequisite: consent of instructor. Welsh

621. Electron Microscopy. (2:2:0) Hess

622. Electron Microscopy Laboratory. (1:0:3) Prerequisites: consent of instructor and completion of or concurrent registration in Bot. 621. Allen, Hess

630. Angiosperm Morphology. (4:3:3) Prerequisite: familiarity with taxonomy, anatomy, and physiology or biochemistry. Tidwell

634. Morphogenesis. (3:2:3) Prerequisite: familiarity with taxonomy, anatomy, and physiology or biochemistry. Moore

638. Genetics of the Fungi. (2:2:0) Prerequisite: a laboratory course in microbiology, botany, or zoology. Andersen

641. Physiology of Fungi and Algae. (4:3:3) Prerequisites: Bot. 335, 440. Weber

650R. Advanced Topics in Plant Ecology. (2:2:0 ea.) Brotherson, Harper, Murdock, Wood

676. Cytogenetics. (3:2:3) Prerequisites: genetics and cytology. Andersen, Stutz

678. Organic Evolution. (3:3:0) Prerequisite: genetics or consent of instructor. Stutz

691R. Graduate Seminar. (1:1:0 ea.)

698R. Special Problems. (1-3:0:3-9 ea.)

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

740R. Advanced Topics in Plant Physiology. (3:2:3 ea.) Prerequisites: Bot. 440; Chem. 351. Smith

742. Plant Nutrition and Growth. (3:2:3) Prerequisite: Bot. 440. Smith

776. Population Genetics. (3:3:0) Prerequisite: genetics and consent of instructor. Stutz

799. Doctoral Dissertation. (Arr.)

Range Science

Three options are available to students who wish to work for a B.S. degree in range science. All options meet Civil Service requirements for the position of range conservationist. Type of employment wanted and personal preferences should be considered in selecting the option in range science to be followed:

A. **Range Resources Option**—designed for students desiring careers in the Soil Conservation Service; federal land management agencies such as the Forest Service, Bureau of Sports Fisheries and Wildlife, Bureau of Land Management, or Bureau of Indian Affairs; or state departments of fish and game, lands, or natural resources.

B. **Agribusiness Option**—designed for students desiring careers in ranch management; banks and other financial institutions; chemical, feed, or seed companies, or livestock organizations; or as consultants; agricultural teachers; or Soil Conservation Service technicians.

C. **Wildland Recreation Option**—designed for students desiring careers dealing with recreational activities on wildlands. Land management agencies, both state and federal, provide a diversity of outdoor recreation activities that require employees trained in both wildland ecology and recreation.

Students desiring employment as range researchers, extension agents or specialists, or college teachers in range science should consider working for advanced degrees after completing a B.S. degree in range science. Counsel should be sought from advisers in selecting electives that will be most helpful in preparing students for graduate work.

An M.S. degree in range science is offered at BYU. A Ph.D. degree in botany with emphasis in ecology and range science may also be earned. The **Graduate School Catalog** should be consulted for details concerning graduate study.

Required and Recommended Courses for Range Science Majors

Required Courses	Range Resources	Agribusiness	Wildland Recreation
Range Sci.	365, 462, 465, 466, 491R, 561	365, 462, 466, 491R, 520, 561 (or 465)	365, 462, 465, 466, 491R, 561
Acctg.		201, 202	
Ag. Econ.	112, 350R (or 325)	112, 320, 325, 410	112, 350R
AgHrt.	282, 303	282	282, 303
An. Sci.	207, 335 (or 340)	207, 335 (or 340), 507	207
Arch.			103
Bot.	101 or 201, 210, 350, 370, 440, 455*	101 or 201, 210, 440	101 or 201, 205, 210, 350, 370, 455*, 469
Chem.	102, 103, 281**	102, 103, 281**	102, 103
Engl.	111, 215 or 316	111, 215, or 316	111, 215, or 316
Math.	105, 106 (or 111)	110R (105 or 111)	105
Org. Behav.		321	
Rec. Ed.			337, 410, 503
Sociol.			111, 205, or 300
Stat.	221	221	
Zool.	457, 203 or 331 or 547		457

*Field experience approved by the department chairman may be substituted for Bot. 455.
**Alternate chemistry group: Chem. 105, 106, 252.

Range Science Minor

Required Courses (19 hours):
Range Sci. 365, 462, 466
AgHrt. 282
3 hours from Range Sci. 465, 491R, 520, 561

Courses

365. Range Forage. (3:2:3) (m) Prerequisite: Bot. 210. Murdock, Vallentine, Wood
Characteristics, distribution, and value of the more important forage plants of the western range.

462. Range Management. (3:2:3) (m) Murdock, Vallentine, Wood
Principles of management, grazing, and maintenance of rangelands.

465. Management of Habitat for Wildlife. (3:2:3) (m) Prerequisite: Bot. 101 or equivalent. Recommended: Zool. 547. Wood

466. Range Improvements. (3:2:3) (m) Murdock, Vallentine
Plant control, seeding, fertilization, mechanical treatments, and livestock handling facilities on rangelands.

491R. Seminar. (1:1:0 ea.) (m)

498R. Special Problems. (1-3:0:3-9 ea.)

520. (Ag. Econ.—An. Sci.—Bot.) Management of Ranch Resources. (3:2:2) (m) Prerequisites: senior or graduate standing and consent of instructor. Corbridge, Shumway, Vallentine
Team taught. Commercial ranch case study. Management plan developed, consisting of maximum profit practices and enterprise combinations.

561. Watershed Management. (3:2:3) (m) Murdock

691R. Graduate Seminar. (1:1:0 ea.)

698R. Special Problems. (1-3:0:3-9 ea.)

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

Business Education

Professors: Bell, D. Peterson, Waters.
Associate Professors: Nelson (Chairman, 351 JKB), Perry, B. Petersen, Polson, G. Smith, H. Smith, Stoddard, Warner.
Assistant Professors: Ashby, Boyer.
Instructors: Baker, Howard.

The Business Education Department provides, within the framework of the College of Business, the preparation needed by young men and women for responsible positions in business and professional business teaching. Three 4-year major programs are available: (1) administrative office management; (2) administrative assistant; and (3) business teacher, with options to specialize in distributive education, office education, or socio-business education. In addition, two associate degree programs are offered: (1) data processing and (2) secretarial.

Department AACSB Core Requirements

In addition to comprehensive study in an area of specialization, the four-year programs provide opportunities for acquiring basic business skills and information defined by the American Association of Collegiate Schools of Business as the "common body of knowledge" needed by all business students. Courses that satisfy the departmental AACSB core requirements for each major are included with the major requirement listing; those courses to be taken during the freshman and sophomore years are marked with an asterisk.

A maximum of 6 hours of D credit will be accepted in courses used to fulfill AACSB plus departmental major requirements for a four-year diploma. A maximum of 3 hours of D credit will be accepted toward fulfilling the two-year major requirements.

Division of Business Fundamentals

All students wishing a four-year major in business education register in the Division of Business Fundamentals until they have completed the following requirements: (1) lower-division departmental AACSB core courses (premajor requirements), indicated by an asterisk in major course requirement listings, with a minimum average grade point of 2.0; and (2) at least 62 hours of approved University credit.

Upon completion of these requirements, students may transfer to the major in which they intend to specialize and graduate.

Administrative Office Management Program

The administrative office management curriculum is designed for students interested in the fields of administrative services, office management, and office personnel management.

Preparation is provided for positions in middle management in the expanding profession of office administration. Training in organization, data processing systems and procedures analysis, communications, accounting, and supervision of personnel are emphasized. An opportunity for on-the-job training, coupled with classwork, may be included to provide a well-rounded program designed to meet employment requirements.

The requirements for the administrative office management major are as follows:

Departmental AACSB Core

Math. 110R* or equivalent	3
Acctg. 201*, 202*, and 203*	9
Acctg. 232A*	1½
Acctg. 342	3
Bus. Ed. 305	3
Bus. Ed. 320	3
Bus. Ed. 480	2
Bus. Mgt. 301	3
Bus. Mgt. 341	3
Comput. Sci. 105*, 133A* and 133B*	6
Econ. 110*, 212*	6
Org. Behav. 321	3
Stat. 221*	3

*Premajor requirements

Administrative Office Management Requirements

Bus. Ed. 220	3
Bus. Ed. 485	1
Comms. 410	2

Plus 12 hours of elective business courses selected in consultation with and approved by the student's major adviser. Some recommended courses are:

Acctg. 301	3
Acctg. 302	3
Acctg. 356	3
Acctg. 455	3
Bus. Ed. 370	3
Bus. Ed. 470R	1-8
Comput. Sci. 233	3
Org. Behav. 421	3
Org. Behav. 425	3
Psych. 111	3
Psych. 330	2
Psych. 336	3

Executive Assistant Program

The executive assistant program is structured to prepare men and women for responsible secretarial positions with top business executives. The program provides a background in general education, business administration, and secretarial procedures so that the graduate can understand problems of top management and assist in providing resources helpful in solving these problems.

The requirements for the executive assistant are as follows:

Departmental AACSB Core

Math. 110R* or equivalent	3
Acctg. 201*, 203*	6
Acctg. 342	3
Bus. Ed. 305	3
Bus. Ed. 320	3
Bus. Ed. 475	3
Comput. Sci. 133A*	2
Econ. 110*, 212 or 300	6
Org. Behav. 321	3
Stat. 221	3
Bus. Mgt. 201 or Econ. 353	3
Bus. Mgt. 241 or 341	3

*Premajor requirements

Executive Assistant Requirements

Bus. Ed. 113* or equivalent	3
Bus. Ed. 203* or equivalent	2
Bus. Ed. 204*	2
Bus. Ed. 206	2
Bus. Ed. 220	3
Bus. Ed. 311	3
Bus. Ed. 370 or 275	3
Bus. Ed. 485	1

*Premajor requirements

Business Teacher Program

The Department of Business Education cooperates with the College of Education in preparing students to teach business courses in junior and senior high schools by offering a composite teaching major, with a specialization in one of the following areas: distributive education, office education, and socio-business.

Students selecting a business teacher composite major will complete the University general education requirements, 23 hours in professional education courses prescribed by the College of Education for secondary school certification, and 51 hours in College of Business or approved substitute courses. **Utah State Secondary School Certification requirements must be completed before the student is recommended for graduation.**

Students should contact an adviser in the Business Education Department early in the program to assure proper selection and sequencing of the required courses.

Requirements for all business teacher majors are as follows:

Teacher Major AACSB Core

Acctg. 201*, 203*	6
Acctg. 342	3
Bus. Ed. 320	3
Bus. Mgt. 241 or 341	3
Bus. Mgt. 201 or Econ. 353	3
Comput. Sci. 133A*	2
Econ. 110*	3
Math. 110R* or equivalent	3

*Premajor requirements

Professional Education Requirements (23 hours)

Bus. Ed. 377**	3
Bus. Ed. 479	8
Ed. 301B	2
Ed. 410	2
Ed. 415	2
Health 362	2
Ed. 403	4

Students will select Bus. Ed. 377 courses required in major area of specialization. Hours in excess of 3 hours required in professional education sequence may be counted as part of major requirements. **All Bus. Ed. 377 courses must be taken before student teaching.

Business Education Requirements for Composite Teaching Major.

Each teaching major will select and complete one of the following optional composite teaching major programs.

A minimum of 51 semester hours, including the teacher major departmental AACSB core courses listed above, is needed to fulfill business education requirements. The Business Education Department will accept a maximum of 6 hours of D credit in courses used to meet this requirement.

Distributive Education

Bus. Ed. 315	3
Bus. Ed. 325	2
Bus. Ed. 489	2
Bus. Mgt. 256**	3
Comms. 230	2
Org. Behav. 321**	3

**Teacher major departmental AACSB core course

Socio-Business Education

Econ. 212** or 300**	3
Econ. 301	3
Bus. Ed. 203	2
Bus. Ed. 220	3
Bus. Ed. 489	2
Bus. Ed. 305**	3
Bus. Ed. 480**	2
Bus. Mgt. 200	3

**Teacher major departmental AACSB core course

In consultation with and with approval of major adviser, a student will select additional courses from the following departments to make a total of 51 hours: Business Education, Accounting, Business Management, Economics, Organizational Behavior, Computer Science.

Office Education

Bus. Ed. 113 or equivalent	3
Bus. Ed. 203 or equivalent	2
Bus. Ed. 204	2
Bus. Ed. 315	3
Bus. Ed. 220	3
Bus. Ed. 311	3
Bus. Ed. 305**	3
Bus. Ed. 377A, 377C	2
Bus. Ed. 475**	3
Bus. Ed. 489	2

**Teacher major departmental AACSB core courses

Associate Degree—Secretarial

The graduates of the two-year secretarial program are employed as private secretaries, executive secretaries, stenographers, and receptionists. They are highly skilled in shorthand, typewriting, office-record management, office-machines operation, and stenographic procedures.

The program is designed for easy transfer to the four-year executive assistant or teacher education program. A total of 64 credit hours is required for graduation. Of this total, the student must have 35 hours in College of Business courses, 32 of which must carry a grade of C- or higher.

General Education Requirements

Engl. 111	3
Engl. 215	3
Physical education	1
Relig. 121, 122	4
Religion	4
Health 130	2
Hist. 170	3
Humanities	3
Physical science	3
Biological science	3

Major Field Requirements

Econ. 110	3
Acctg. 201, 203	6
Bus. Ed. 101*	2
Bus. Ed. 111*	4
Bus. Ed. 112	3
Bus. Ed. 113	3
Bus. Ed. 311	3
Bus. Ed. 203	2

Bus. Ed. 204	2
Bus. Ed. 206	2
Bus. Ed. 220	3
Bus. Ed. 275	4
Bus. Ed. 305	3
Bus. Ed. 485	1

*If a student has had typewriting and/or shorthand in high school, then he need not take the beginning classes.

Associate Degree—Data Processing

The data processing program is designed to prepare a person to work in the business community as a unit-record equipment operator, as a computer operator, or as a programmer with special emphasis on programming for business applications. In addition, supervisory jobs are available at each of these levels. The program combines training in computer science with mathematics, accounting, and business education. The program is designed for easy transfer to a four-year administrative office management program.

A total of 64 credit hours is required for graduation. The maximum D credit allowed in major field requirements is 3 semester hours.

General Education Requirements

Engl. 111	3
Engl. 215	3
Physical education	1
Relig. 121, 122	4
Religion	4
Health 130	2
Hist. 170	3
Humanities	3
Biological science	3

Major Field Requirements

Acctg. 201	3
Acctg. 203	3
Bus. Ed. 305	3
Bus. Ed. 320	3
Bus. Ed. 485	1
Comput. Sci. 105	2
Comput. Sci. 132	3
Comput. Sci. 133A, 133B	3
Comput. Sci. 233	3
Econ. 110	3
Econ. 212	3
Math. 110R	3
Stat. 221	3
Elective	3

Graduate Business Teacher Education

A complete program of graduate courses in business teacher education is provided for teachers desiring a master's degree, or for experienced teachers who wish to fulfill state recertification requirements. Consult the **Graduate School Catalog** for further details.

Courses

101. Beginning Typewriting. (2:3:2)
Mastery of the keyboard and development of basic skills. Students with high school credit in typewriting should not register for this course.

111. Elementary Shorthand. (4:5:1) Home Study also. Prerequisite: Bus. Ed. 101 or equivalent.
Fundamentals of shorthand theory, with emphasis on fluency in reading and writing shorthand. Not recommended for students with previous shorthand experience.

112. Intermediate Shorthand. (3:5:1) Prerequisite: Bus. Ed. 111 or equivalent.
Development of accelerated shorthand writing and transcription competency. Enrolling students should be able to take dictation at a minimum of 60 words per minute and typewrite at 50 words per minute.

113. Advanced Shorthand. (3:4:1) Prerequisite: Bus. Ed. 112 or equivalent.
Emphasis on accelerated shorthand writing and rapid transcription of letters. Enrolling students should be able to take dictation at a minimum of 80 words per minute and typewrite at 50 words per minute.

203. Speedbuilding in Production Typewriting. (2:3:2) Home Study also. Prerequisite: Bus. Ed. 101 or equivalent.
Intensive drills, with emphasis on production of speed and control in the production of manuscripts, outlines, minutes, tabulations, letters, rough drafts, and legal instruments.

204. Advanced Production Techniques in Typewriting. (2:3:2) Prerequisite: Bus. Ed. 203 or equivalent.
Application of advanced production techniques to practical business problems, including statistical reports, office projects, editing, and composition.

206. Calculating Machines. (2:3:2)
Instruction and development of operational proficiency with adding and electronic calculating machines. Business problems are emphasized.

220. Business Communication. (3:3:0) Home Study also. Prerequisite: Engl. 111.
Experience in the composition of business correspondence, with emphasis on the psychological principles that foster favorable human relations and goodwill.

275. Stenographic Procedures. (4:3:5) Home Study also. Prerequisites: Bus. Ed. 113 204, and 220.
Comprehensive analysis of secretarial responsibilities accompanied by laboratory experiences. To be taken during the final semester by secretarial technician students.

☐**Accounting 301, 302. Intermediate Accounting.** (3:3:0 ea.)

305. Principles and Methods for Analyzing Office Operations. (3:3:0) Home Study also.
An introduction to the basic functions of administrative management. Concentrates on data processing, leadership, organization, work simplification, and systems control.

311. Transcription. (3:3:3) Prerequisites: Bus. Ed. 113 or equivalent.
Emphasis on accurate and rapid shorthand transcription utilizing a variety of written communication skills. A minimum speed of 100 words per minute is required for entrance.

315. Cooperative Business Education and Coordination Techniques (3:3:0)
Philosophy, instructional methods, and coordination techniques in cooperative office and distributive education programs.

320. Business Report Writing. (3:3:0)
Experience in the organization and preparation of business reports, with emphasis on the refinement of language skills and the techniques of collecting, analyzing, interpreting, and presenting business data.

☐**Organizational Behavior 321. Organizational Behavior and Administration.** (3:3:0)

325. The Distributive Education Curriculum. (2:2:0) Prerequisite: Bus. Ed. 315.
A comprehensive overview of the subjects that comprise the distributive education curriculum, with models for use at the high school, post-secondary, and adult levels.

☐**Accounting 356. Accounting Information Systems.** (3:3:0)

370. Modern Office Machines. (3:3:3) Prerequisite: Bus. Ed. 203.
Instruction in the use and application of modern office machines—duplicating, word processing, and basic data processing.

377A,B,C,D,E,F. Secondary Teaching Curriculum and Methods. (1:2:0 ea.) Prerequisites: Ed. 301; Acctg. 201, 202; Econ. 101 or 111.
A—Bookkeeping; B—Distributive Education; C—Economics and General Business; D—Office Education; E—Stenography; F—Typewriting.

☐**Business Management 380R. Executive Lectures.** (1:1:0 ea.)

☐**Accounting 455. Data Processing Systems.** (3:3:0)

470R. Cooperative Business Experience Internship. (1-8:0:5-40 ea.) Prerequisites: completion of major requirements and consent of department chairman.
The student is placed in an office or business, enabling him to enrich classrom theory with practical application. Arrangements for the internship must be made during the semester before enrollment.

475. Procedures for Executive Assistants. (3:3:2) Prerequisites: Bus. Ed. 204, 220, 311, 320, and 370. Offered Winter Semester only.
The culminating executive assistant course. Study includes an integration of previous preparation and an intensive analysis of specialized administrative duties.

479. Secondary Student Teaching. (4-8:0:20-40) Prerequisite: Bus. Ed. 377.
For course description and fee, see Ed. 479.

480. Case Studies in Office Management. (2:2:1)
Extensive use of cases in office management. Student analysis, group discussions, and written reports form the principal basis for conduct of the course. Offered alternate years.

485. Lectures on Office Administration. (1:1:0) Offered Fall Semester only.
Prominent businessmen present lectures on pertinent office administration topics such as data processing, leadership, motivation, planning, and control.

489. Senior Seminar for Business Teacher Majors. (2:2:0) Prerequisite: Bus. Ed. 479.
An analysis of the business teacher's role and responsibilities in the secondary school.

515R. Methods of Instruction in Business Education. (2-3:Arr.:Arr. ea.)
An analysis of classroom methods, psychology of learning, and findings of research pertaining to improvements of instruction in any of the following areas: typewriting, shorthand, bookkeeping, economic education, and distributive and cooperative education.

530. Current Developments Influencing the Curriculum and Content of Business Education. (2:2:0)
A study of recent technological developments, such as automation in business, and an analysis of the content, materials, and procedures of business education.

590R. Seminar in Business Education. (1-2:Arr.:Arr. ea.)
An intensive clinic emphasizing teaching methodology in one or more selected topics in business education.

605. Introduction to Research in Business Education. (3:3:0)

625. Tests and Measurements in Business Education. (3:3:0) Prerequisite: Stat. 221 or equivalent.

635. Implications of Research for Improved Classroom Instruction. (3:3:0)

692. Research Projects. (1-4:Arr.:Arr.)

694. Independent Readings. (1-2:1-2:0)

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

790R. Doctoral Seminar. (Arr.)

799. Dissertation. (Arr.)

Business Management

Professors: Christensen, Daines, Edwards, Oaks, Stanford.
Associate Professors: Barnes, Call (Chairman, 395 JKB), Lambert, McKinnon.
Assistant Professors: Cox, Jackson, Lee, Schill, Wistisen.
Visiting Professor: Jones.

The primary objectives of the Business Management Department are (1) to prepare students for responsible leadership in their chosen professions; (2) to train, in depth, students interested in careers in marketing, production, finance, or other functional areas; and (3) to give students a broad understanding of individual and group behavior in industry.

Both the content and instructional methods of business management courses are designed to develop qualities in students which will help them realize their potential. Emphasis is placed on analytical skill and sound reasoning, insight and balanced judgment, understanding of human problems in organizations, proficiency in written and oral communication, and the rigor of learning on one's own initiative. The Department of Business Management also recognizes its responsibility to acquaint students with current research in the social sciences, techniques of decision making, new tools of quantitative analysis, and other applications of the management sciences. In addition, students are exposed to changing values and goals in today's society, the social responsibility of business leadership, the changing role of government in society and international trade, and the growth of multinational diversified corporations.

The following fields of concentration are administered by the Department of Business Management: general business, finance, marketing, and operations and systems analysis. After completing general education and tho college and departmental core requirements listed below, a student must elect one of the departmental concentrations.

An automatic composite minor in accounting and economics will have been earned by those students majoring in the department.

Business Management Department AACSB Core Requirements: To meet the requirements of the American Assembly of Collegiate Schools of Business, the Business Management Department requires students to take the following courses in their freshman and sophomore years:

Econ. 110
Math. 110R
Stat. 221
Acctg. 201, 202
Acctg. 232A and 232B
Comput. Sci. 133A

Before completing all these courses, a student registers in the Division of Business Fundamentals. After completion of the above courses with a GPA of 2.25 or a C in all seven courses the first time each is taken, students may then register as majors in the Business Management Department.

Please note that a student may not begin taking the junior level courses while still registered in Business Fundamentals except under extraordinary circumstances.

For details concerning the program of graduate study leading to the Master of Business Administration degree, students should consult the **Graduate School Catalog.**

General Education. See the General Education Requirements section of this catalog for a detailed discussion of the University's general education program.

Business Management Department Requirements

Freshman and Sophomore	**Hours**
Math. 110R	3
Acctg. 232A and 232B	3
Acctg. 201, 202	6
Econ. 110	3

Stat. 221	3
Comput. Sci. 133A	2

Junior and Senior	Hours
Acctg. 342	3
Org. Behav. 321	3
Econ. 300, 301	6
Bus. Mgt. 301	3
Bus. Mgt. 341	3
Bus. Mgt. 361	3
Bus. Mgt. 499	3
Selected area of concentration (to be selected from one of the areas below)	15-16

General Business Concentration

This is an integrated multifunctional program designed for exceptional students. It is particularly adapted to the needs of students who intend to continue their study of business at the graduate level at a school other than BYU. A minimum overall grade-point average of 3.0 following completion of the junior year is required. Interested students should make written application to the department chairman at least four semesters before their planned date of graduation.

Students electing this concentration are required to take the following courses:

	Hours
Bus. Mgt. 461	3
Bus. Mgt. 401	3
Bus. Mgt. 442	4
Electives (See Note on Senior Electives)	6

Finance Concentration

The course work offered in this area is designed, first, to familiarize business students with the elements of financial planning and, second, to provide specialized work for those who seek positions of management and executive responsibility in financial institutions or the financial departments of business firms. The requirements are flexible enough to allow some specialization toward commercial banking, investment banking, business finance, insurance, real estate, investment management, or financial counseling.

Students electing this concentration are required to take the following courses:

	Hours
Bus. Mgt. 401	3
Bus. Mgt. 405	3
Bus. Mgt. 410	3
Electives (See Note on Senior Electives)	6

Marketing Concentration

The marketing concentration is designed to prepare students for positions in sales and management and for executive responsibility in marketing, including retail management, product and brand management, sales management, and various analytical staff functions.

Students electing this concentration are required to take the following courses:

	Hours
Bus. Mgt. 442	4
Bus. Mgt. 459	3
One of the following:	
Bus. Mgt. 443, 454, 456, or 458R	3
Electives (See Note on Senior Electives)	6

Operations and Systems Analysis Concentration

The course work offered in this area is designed for the business student whose interests lie in the operations area of the business enterprise and/or in the use of quantitative techniques to aid in the analysis of managerial problems. The requirements within the concentration are flexible enough to allow a special emphasis on operations management, computer science, or statistical analysis. Students could be prepared for positions in operations management, systems analysis, operations research, quantitative systems, or industrial engineering. In addition, many of the courses offered in this area would provide an excellent support for those students interested in the increasingly important quantitative aspects of finance and marketing.

The following courses are required:

	Hours
Bus. Mgt. 461	3
Two of the following	6
Bus. Mgt. 463	
Bus. Mgt. 468R	
Stat. 330	
Stat. 337	
Comput. Sci. 231 or 233	
Comput. Sci. 451	
Comput. Sci. 571	
Elective (See Note on Senior Electives)	6

Supporting Field in International Business

Graduate students outside the College of Business who decide to obtain an understanding of international business without majoring in the department may take Bus. Mgt. 430, Introduction to International Business. This course is a survey course designed to acquaint the student with micro and macro dimensions in international business. Those interested in a supporting field in international business may also take Bus. Mgt. 432 upon approval of the instructor and the chairman of the Business Management Department.

Note on Senior Electives

Electives may be selected from any 400-level business management courses and, upon approval by the department chairman, from among certain relevant courses from other departments.

Minor in Business Management

Students minoring in the Department of Business Management should complete the departmental AACSB requirements plus twelve hours of upper-division business management courses (excluding Bus. Mgt. 380R).

Administrative Office Management Major

See Department of Business Education.

Courses

200. Personal Finance. (2:2:0) Home Study also.
A practical course in money management, with particular reference to utilization of savings.

201. Introduction to Corporate Finance. (3:3:0)
The principles and concepts of corporate financial management, including planning, analysis, control, working, capital management, and financial structure. For nonmajors only.

210. Introduction to Investments. (3:3:0)
Security markets, selection of stocks for a portfolio, and basic investment analysis. Designed for nonbusiness majors.

241. Introduction to Marketing. (3:3:0)
The principles, concepts, and problems concerned with the distribution of goods from producer to consumer. Includes treatment of buyer behavior, product planning, pricing, and promotion.

256. Introduction to Retailing. (3:3:0)
A survey of retail store operation, considering executive control, profit planning, merchandising, store location, layout, organization, policies, system, and coordination of store activities.

301. Financial Management. (3:3:0) Home Study also. (m) Prerequisites: Acctg. 232A and 232B or calculus, Acctg. 202 or 302, Comput. Sci. 133A, Stat. 221, and Econ. 110.
Introduction to the elements of financial management from the viewpoint of the business manager, emphasizing profitability, liquidity, and long-range financial planning.

341. Marketing Management. (3:3:0) Home Study also. (m) Prerequisites: Acctg. 232A and 232B or calculus, Acctg. 202 or 302, Comput. Sci. 133A, Stat. 221, and Econ. 110.
Analysis of problems in marketing management, with particular emphasis on the understanding and use of basic concepts and tools of analysis for marketing decision making.

361. Operations Management. (3:3:0) (m) Prerequisites: Acctg. 232A and 232B or calculus, Acctg. 202 or 302, Comput. Sci. 133A, Stat. 221, and Econ. 110.
Management science techniques, with particular emphasis on the operations function of a firm.

380R. Executive Lectures. (1:1:0 ea.)
Top executives from throughout the nation visit the campus and meet students in a series of lectures on subjects significant to executive leadership.

401. Advanced Financial Management. (3:3:0) (m) Prerequisites: Bus. Mgt. 301, Econ. 300. Recommended: Econ. 301.
Capital budgeting, cost of capital, mergers and acquisitions, and current financial problems.

405. Management of Financial Institutions. (3:3:0) Prerequisites: Bus. Mgt. 301, Econ. 301.
Management problems of commercial bank and nonbank financial institutions with emphasis on asset management, regulation, and the process of intermediation.

410. Investment. (3:3:0) (m) Prerequisites: Bus. Mgt. 301, Econ. 301.
Security market, portfolio management, taxes, estate planning, and security analysis.

411. Advanced Investments. (3:3:0) (m) Prerequisites: Bus. Mgt. 301, 410. Recommended: Bus. Mgt. 401.
Current investment literature, Markowitz theory, random characteristics of stock market prices, investment, research, and security analysis.

430. Introduction to International Business. (3:3:0) (m) Prerequisite: consent of instructor.
Introduction to the complexities confronting U.S. firms and their management in international environments. Emphasis is given to functional and planning areas, including organization, market research, financial analysis, etc.

431. International Marketing. (3:3:0) (m) Prerequisites: Bus. Mgt. 301, 341, 361; Org. Behav. 321; or consent of instructor.
An analysis of selected international markets, institutions, and marketing management practices.

432. International Corporate Finance. (3:3:0) (m) Prerequisites: Bus. Mgt. 301, 341, 361; Org. Behav. 321; or consent of instructor.
Emphasis is on financial aspects of multinational corporations operating within an international environment. Included are discussions concerning direct foreign investment, foreign exchange regulations, capital markets, etc.

442. Buying Behavior and Marketing Decisions. (4:4:0) (m) Prerequisite: Bus. Mgt. 341.
Analysis of markets and market segments as they influence marketing decisions.

443. Product and Brand Management. (3:3:0) (m) Prerequisite: Bus. Mgt. 341.
A functional approach to the management of brands and products.

454. Sales and Distribution Management. (3:3:0) (m) Prerequisites: Bus. Mgt. 341 and 442.
Analysis of sales methods, organization and management, as they influence the field sales force and institutions.

456. Retailing Management. (3:3:0) (m) Prerequisites: Bus. Mgt. 341 and 442.
Selection, location and management of retail stores and systems with emphasis on profitability and integration of accounting, finance and economic concepts and tools.

458R. Seminar in Marketing Management. (3:3:0 ea.) (m) Prerequisites: Bus. Mgt. 341 and 442.
Flexible titles: 1. Social Issues in Marketing Management, 2. Quantitative Techniques and Forecasting, 3. Personal Selling, 4. Advertising Management, and 5. Industrial Marketing Management.

459. Problems in Marketing Analysis. (3:3:0) (m) Prerequisites: Bus. Mgt. 301, 341, and 442.
The integration of finance, accounting, and economic concepts and techniques in making marketing decisions.

461. Advanced Operations Aanalysis. (3:3:0) (m) Prerequisite: Bus. Mgt. 361.
Operations research/management science techniques as a managerial aid to decision-making under certainty and uncertainty.

463. Advanced Operations Management. (3:3:0) (m) Prerequisite: Bus. Mgt. 361.
Cases, readings, research, and reports on current industrial practices and problems.

468R. Selected Topics in Operations and Systems Analysis. (3:3:0 ea.) (m) Prerequisites: Bus. Mgt. 361 and 461.

480. Risk Management. (3:3:0) (m) Prerequisite: Bus. Mgt. 301.
The importance of risk in personal and business affairs; the different methods of meeting risks; meeting insurable risks through insurance; risk and public policy.

483. New Enterprise Management. (3:3:0) Prerequisites: Bus. Mgt. 301, 341, 361, and Org. Behav. 321.
Concepts and skills of entrepreneurship. Application of functional tools to case situations.

487. Real Estate Administration. (3:3:0) (m) Prerequisites: Bus. Mgt. 301, Econ. 301.
An application of the principles and techniques on problems in property investments. Includes determination of value, financing arrangements, and marketing and management problems.

488. The Social and Cultural Environment of Business Enterprise. (3:3:0) (m) Prerequisite: senior standing in the department.
The influence of historical, cultural, psychological, and social forces on business behavior.

490R. Topics in Business Management. (3:3:0 ea.) Prerequisite: completion of business fundamentals and College of Business core courses.

491. Research and Diagnosis of Business Problems. (1-2:Arr.:Arr.) (m) Prerequisite: completion of or concurrent registration in Bus. Mgt. 499.

499. Business Policy. (3:3:0) (m) Prerequisites: Bus. Mgt. 301, 341. Recommended: Econ. 300 and Org. Behav. 321.
Cases involving determination of long-range objectives in the business firm, and the development of sound and consistent policies for achieving these objectives. (Should be taken during last semester before graduation.)

610. Managerial Economics. (3:3:0)

611. Written and Oral Communication I. (1:3:0)

612. Mathematics for Business Analysis. (2:3:0)

613. Computer Language. (1:3:0)

614. Management Control I. (3:3:0)

616. Organizational Behavior. (3:3:0)

620. Environmental Economics. (3:3:0)

621. Written and Oral Communication II. (1:1:0)

622. Statistics for Business Analysis. (2:3:0)

623. Management Simulation. (1:3:0)

624. Management Control II. (3:3:0)

625. Marketing Management. (3:3:0)

627. Operations Management. (3:3:0)

628. Financial Management. (5:3:0)

631. Written Analysis II. (1:1:0)

635. Buyer Behavior and Marketing Decisions. (3:3:0)

636. Management and Organization Development. (3:3:0)

638. Seminar in Corporate Finance. (3:3:0)

639. Business Policy I. (3:3:0)

642. Decision Theory. (1:3-5 wks.:0)

643. Computers and Management. (1:3-5 wks.:0)

649. Business Policy II. (3:3:0)

652. Advanced Operations Analysis. (3:3:0)

654. Controls III. (3:3:0)

655. Quantitative Methods in Marketing Analysis. (3:3:0) Prerequisite: Bus. Mgt. 635.

657. Systems Analysis and Design. (3:3:0)

658. Investments. (3:3:0)

659. New Enterprise Management. (3:3:0)

660. The Business Administrator and Government Policy. (3:3:0)

665. Sales and Distribution Management. (3:3:0)

668. The Capital Markets: Structure and Analysis. (3:3:0)

675. International Business Management. (3:3:0)

678. Seminar in Finance. (3:3:0)

679. Business, Society, and the Individual. (3:3:0)

685. Seminar in Marketing. (3:3:0)

693. Readings and Conferences. (1-3:Arr.:0)

Career Education

Professors: Flandro, V. Jensen, Reid.
Associate Professors: Chamberlain, Heaps (Director, 135-A BRMB), L. E. Johnson, Peterson, Sorenson.
Assistant Professors: Goodson, D. Jensen, Nalder.
Instructor: R. Johnson.

Career education is a lifelong process of personal and career exploration and development. This process involves continuous decision making based on personal evaluations of goals, values, and opportunities. It is particularly important to a student preparing for his entry occupation and future lifestyle to receive effective information and guidance during the exploratory and planning process. Such timely assistance can enhance the efficiency and appropriateness of a student's academic and life preparation.

The Career Education Program provides a class designed to teach decision-making skills, a laboratory to help students apply decision-making skills to the choice of a major and/or occupational field, life-planning workshops concerned with exploration of personal goals, and a corps of advisers to help students explore educational and occupational opportunities and to select a major best suited to these opportunities.

The Career Information Center, 135 BRMB, contains detailed, current information about numerous occupations, college majors, educational programs approved by national associations, professional licensing requirements for various states, and placement information about recent BYU graduates.

Courses

115. Practical Decision Making. (1:1:0) (G-ML)
Consideration of personal values, creative thinking, and decision making as they relate to important life decisions. Emphasis is placed on learning and applying decision-making skills.

116. Educational-Occupational Exploration Laboratory. (½:0:1) Prerequisite: concurrent or prior registration in Career Ed. 115.
An experiential laboratory concerned with the application of decision-making skills to the choice of a major and/or an occupational field.

Chemical Engineering Science

Distinguished Professor: Hall.
Professors: Barker, Christensen, Coates, Hanks, Horton, Pope, Smoot (Chairman).
Associate Professors: Glassett, Wilson.
Assistant Professors: Bartholomew, Jackson.
Instructor: Oscarson.

The Department of Chemical Engineering Science offers professional training leading to the degrees of Bachelor of Science (B.S.), Master of Science (M.S.), Master of Enginering (M.E.), and Doctor of Philosophy (Ph.D.). The curriculum is accredited by the Engineers' Council for Professional Development and the American Institute of Chemical Engineers. The department also provides training leading to the two-year Associate of Science degree as a chemical-engineering technician.

The professional chemical engineer finds employment in a wide range of fields from environmental control to rocket propellant manufacture. His principal activity is to change raw materials into useful and valuable products by applying a basic knowledge of chemistry, physics, mathematics, and economics. Using this knowledge, he conducts research on processes; markets products; and designs, builds, operates, and manages complex manufacturing plants.

All chemical engineering students take basic courses in chemistry, .mathematics, physics, and chemical engineering. The course of study leading to the B.S. degree is designed to allow the student to choose from 14 to 19 semester hours in one of several options. The courses recommended for each option are listed below. These options are designed to give increased training in a student's specific field of interest. Successful completion of these courses will qualify the graduate for work in any of the many fields that employ chemical engineers, such as those within the chemical industry and those related to the study of atomic energy, petroleum, air and water pollution, and space, or they will qualify him to pursue further studies leading to an advanced degree.

Chemical engineering technicians are an important part of the chemical-process industries. They find employment in all the industries listed in the above general description of the chemical enginering profession. They form part of the team and are individually responsible for such things as obtaining and analyzing data, operating equipment, and planning and carrying out experiments. The technician must be able to perform tests, solve mathematical and chemical formulas, assemble and work with intricate laboratory equipment, make accurate measurements and computations, and supervise the work of others. The training suggested below will give the technician the tools to carry out this necessary and meaningful work. The technician student may be involved in research programs in the department or, with prior approval, may be employed in industry in a co-operative program to satisfy this requirement.

Entrance Requirements

Entrance requirements are similar for all branches of engineering at BYU and are specified in detail in the section of this catalog devoted to a description of the College of Engineering Sciences and Technology.

Transfer Students

Provisions have been made so that a qualified student transferring from a junior college or from other universities, colleges, or departments can complete the B.S. degree requirements in two years. The qualifications and suggested course sequence are listed below. Prospective transfer students should contact the department at the earliest date possible so that any variations can be accommodated with minimum loss of time to the student.

Grade Requirements

In order to continue in the Chemical Engineering Science Department, a student must maintain a cumulative grade-point average of 2.0 or higher in each of the following subjects: mathematics, chemistry, and physics. Students not maintaining this average will be placed on probationary status in the department.

In order to graduate, a student must maintain an overall average of at least 2.0. When a student receives a second D in a chemical engineering class, he is put on department probation and must then repeat either class and obtain a C or better before he takes any other chemical engineering classes. If he should receive a third D in this or any future chemical engineering class, he is put on a year's probation, during which time he cannot take any chemical engineering class. Thereafter, if he receives another D, he is dropped from the program.

Chemical Engineer

Course Requirements

Students may register for 18 hours per semester, exclusive of physical education, without obtaining special permission. The courses required for the B.S. degree in chemical engineering are summarized in the following tabulations. It is expected that the student will complete the course work in three calendar years. Provision is made for a four-year program and this is also shown below. Freshmen, sophomores, and juniors majoring in chemical engineering are required to register for Chem. Eng. 291R during each semester of full-time registration.

Students completing missions and returning to the Chemical Engineering Department will be given special help in arranging their schedules. They should contact the department to make suitable arrangements.

Suggested Sequence of Courses (B.S. Degree)
Three-Year Program

First Year	F	W	Sp	Su
Chem. Eng. 100, 101, 273	1½	1½		3
Chem. Eng. 291R	0	0		
Chem. 111, 112, 113	3	6		
Econ. 110 or 212	3			
Engl. 111	3			
Health 130***				2
Hist. 170***		3		
Religion (incl. 121, 122)	2	2		2
Math. 112, 113†	4	4		
Physical education	½	½		½
	17	17		7½

Second Year	F	W	Sp	Su
Chem. Eng. 291R	0	0		
Chem. Eng. 374, 376	3	3		
Chem. Eng. 373			3	
Chem. Eng. 475			2	
Chem. 351, 352, 353			3	4
Chem. 461, 462, 464	3	5		
Math. 214, 321	3	3		
Physical education	½			
Physics 121, 122	3	3		
Religion	2			2
Social science				2
Option electives*	3	3		
	17½	17	8	8

Third Year	F	W	Sp
Biological science†			4
Chem. Eng. 378		3	
Chem. Eng. 464		3	
Chem. Eng. 476	3		
Chem. Eng. 477		2	
Chem. Eng. 478	3		
Chem. Eng. 491R	½	½	
Civ. Eng. 201	2		
Elec. Eng. 301		2	
Engl. 316	3		
Humanities	3	3	
Religion	1	1	2
Option electives*	2-3	3	3
	17½-18½	17½	9

Suggested Sequence of Courses (B.S. Degree)
Four-Year Program

Freshman	F	W
Chem. Eng. 100, 101	1½	1½
Chem. Eng. 291R	0	0
Chem. 111, 112, 113	3	6
Econ. 110 or 212		3
Engl. 111	3	
Hist. 170***	3	
Math. 112, 113†	4	4
Physical education	½	½
Relig. 121, 122	2	2
	17	17

Sophomore	F	W
Chem. Eng. 291R	0	0
Chem. Eng. 273, 378	3	3
Health 130***	2	
Chem. 351, 352	3	3
Chem. 353		1
Math. 214, 321	3	3
Physical education	½	½
Physics 121, 122	3	3
Religion	2	2
Social science		2
	16½	17½

Junior	F	W
Chem. Eng. 291R	0	0
Chem. Eng. 373		3
Chem. Eng. 374, 376	3	3
Chem. 461, 462, 464	3	5
Elec. Eng. 301		2
Engl. 316	3	
Humanities	3	
Religion	2	2
Option electives*	3	3
	17	18

Senior	F	W
Biological science†	4	
Chem. Eng. 464		3
Chem. Eng. 475	2	

Chem. Eng. 476	3	
Chem. Eng. 477		2
Chem. Eng. 478	3	
Chem. Eng. 491R	½	½
Civ. Eng. 201		2
Humanities		3
Religion	1	1
Option electives*	3	5-6
	16½	16½-17½

Transfer Student** **(Jr. Level)**	F	W
Chem. Eng. 291R	0	0
Chem. Eng. 273, 378	3	3
Chem. Eng. 374, 376	3	3
Chem. Eng. 373		3
Chem. 461, 462, 464	3	5
Elec. Eng. 301		2
Engl. 316	3	
Religion	2	2
Option electives	3	
	17	18

*Option electives to be selected from one of the options listed below. Options may be designed by the student with adviser and departmental approval in advance.

**Transfer students should have completed calculus, differential equations, inorganic and organic chemistry, physics, and all general education requirements listed in the freshman and sophomore years. Transferring students should take Chem. Eng. 101 on a self-study basis. An additional 3 hours of option electives will be required in the senior year if suitable transfer classes are not available.

***It is recommended that these courses be taken by special examinations.

†Math. 111 and Des. Tech. 111 are presumed to be prerequisites for the freshman year. A student may be exempted from these classes if he has completed an equivalent high school course and passes a placement exam given prior to registration.

‡The general education requirement in biological sciences is 4 semester hours for chemical engineering science majors.

Options

The curriculum outlined above leading to the B.S. degree in chemical engineering provides for 14-19 semester hours of technical electives. The set of courses taken by the student to fill the technical-elective requirements is referred to as a "technical option." To meet accreditation requirements and provide for maximum flexibility in student course selection, the department has outlined a series of options, any of which can be selected by the student to satisfy the technical-electives requirements. The student may also design his own technical option subject to approval in advance by his adviser and the department. Minimum requirements for a technical option are as follows:

1. The set of courses should be an integrated program that achieves some objective such as additional training in a specific area.
2. The set of courses must include at least 3 semester hours of engineering theory and 3 semester hours of engineering application.
3. The set of courses must include at least 2 semester hours of mathematics or statistics beyond Math. 321.
4. The courses selected should be upper-division technical courses (i.e., engineering science, math, or business), except where the courses also satisfy the general education requirements.

It should be emphasized that all students receive their primary training as chemical engineers. The technical-option classes allow a student to study in a specific area of personal interest in which chemical engineers find employment.

The student may select one of the following options to fit his individual needs and interests. All of the option elective courses shown in the recommended sequence of courses outlined above must be taken from one option only. The sequence of option courses may be interchanged with general education requirements. Any variation within the option selected must be approved by the student's adviser and the department.

A student may design his own sequence of option courses from such areas as chemistry, physics, mathematics, food processing, medicine, etc. This allows the student maximum flexibility. Courses should be chosen to give a sound technical background and in all cases must be approved by the department before undertaking the courses.

Energy and Environment Option

Chemical engineering provides an ideal background for students interested in technical energy and environmental problems such as coal gasification, shale oil recovery, and pollution control. The student should complete 19 hours from the following courses (which will also fulfill the general education requirement in biology):

Required Courses (11 hours)
Chem. Eng. 510, 520
Civ. Eng. 550 (3) Water Quality Management
Stat. 332 (2) Statistical Methods
Elective Courses‡ (7-8 hours)
Chem. Eng. 550, 677, 681
Civ. Eng. 451 (3) Sanitary Engineering
Bot.-Zool. 250 (3) Environmental Biology
Geol. 104 (3) Environmental Geology
Micro. 311 (2) Sanitation and Public Health
Micro. 381 (2) Water and Sewage Microbiology

‡Of the optional courses at least 4 hours of biology and/or microbiology are needed to fulfill biology requirements.

Nuclear Option

Production of power in the future will depend heavily on nuclear reactors. Many chemical engineers are now working in this field of endeavor. Completion of the 15 hours shown below will train the student for more effective and immediate value to this growing field.
Required Courses (15 hours)

Chem. Eng. 582, 583
Math. 323 (3) Applied Partial Differential Equations
Physics 222 (3) Principles of Physics
Physics 555 (3) Nuclear Reactor Physics
Physics 557 (1) Nuclear Reactor Physics Laboratory

Plant Design and Operations Option

Chemical engineers who wish to emphasize the design and operation of a chemical plant should complete the option that follows. This option brings together the economics and design principles of chemical engineering.

Required Courses (10 hours)
Chem. Eng. 520, 550, 683*
Stat. 332 (2) Statistical Methods Used in Engineering
Elective Courses (4-5 hours)
Chem. Eng. 498R**, 510, 677
Elec. Eng. 302 (2) Elements of Electrical Engineering
Mech. Eng. 531 (3) Principles of Automatic Control
Mech. Eng. 541 (3) Advanced Heat Transfer

*This course ordinarily taken during the Spring Term following Chem. Eng. 464.

**Chem. Eng. 498R must be coordinated with Chem. Eng. 683 to provide opportunity for detailed design and economic evaluation of a pilot plant for some process of the student's choosing.

Management Option

A large number of chemical engineers are employed as managers in the chemical industry. Students wishing to acquire increased management skills should complete 16 hours as listed below.

Required Courses (10 hours)
Chem. Eng. 510, 550, 683**
Stat. 332 (2) Statistical Methods in Engineering
Elective Courses (6 hours)
Acctg. 201 (3) Elementary Accounting
Bus. Mgt. 301 (3) Financial Management
Bus. Mgt. 341* (3) Marketing Management
Bus. Mgt. 361* (3) Operations Management
Bus. Mgt. 458R (3) Seminar in Marketing Management

*Requires Acctg. 201 or instructor's permission.
**This course is ordinarily taken during the Spring Term following Chem. Eng. 464.

Bioengineering and Premedicine Option

The courses listed under this option will prepare the student for employment in the food or pharmaceutical industries, for research and development of artificial organs, or for graduate study in the field of medicine. The 18-19 hours of course work satisfy the University general education requirements in biological sciences as well as the department elective requirements.

Required Courses (8 hours)
Chem. Eng. 520, 550
Stat. 332* (2) Statistical Methods in Engineering
Elective Courses‡ (10-11 hours)
Chem. 481 (4) Biochemistry
Chem. 484 (2) Biochemistry Laboratory
Micro. 331 (5) Microbiology
Micro. 381 (2) Water and Sewage Microbiology
Micro. 451 (3) Bacterial Physiology
Micro. 521 (2) Industrial Microbiology
Micro. 522 (1) Industrial Microbiology Laboratory

*Math. 411 can be taken in place of Stat. 332.
‡Student must select these courses so as to satisfy biological science requirement (4 hours).

Research and Development Option

This option prepares the student for entry into graduate school and/or for employment in the field of industrial research and development.

Required Courses (12 hours)
Chem. Eng. 499, 673, 681
Math. 323 (3) Applied Partial Differential Equations
Elective Courses (3 hours)
Chem. Eng. 510, 520, 550
Mech. Eng. 512 (3) Boundary Layer Theory
Mech. Eng. 541 (3) Advanced Heat Transfer
Chem. 561 (3) Chemical Thermodynamics
Math. 411 (3) Numerical Methods

Aerospace Option

The aerospace industry provides a wide variety of opportunities ideally suited to chemical engineers. Problems in propulsion, combustion, fluid mechanics, and flight mechanics are typical of the challenges this field offers. Chemical engineering students wishing to specialize in aerospace engineering should complete 15 hours from the following courses.

Required Courses (9 hours)
Chem. Eng. 673 (3) Transport Phenomena
Mech. Eng. 511 (3) Intermediate Gas Dynamics
Math. 323** (3) Applied Partial Differential Equations
Elective Courses* (6 hours)
Chem. Eng. 510, 520
Mech. Eng. 512 (3) Boundary Layer Theory
Mech. Eng. 541 (3) Advanced Heat Transfer
Mech. Eng. 542 (3) Design of Heat-Transfer Systems
Math. 315 (3) Methods of Advanced Calculus
Math. 322 (3) Topics in Applied Mathematics
Physics 527, 528 (3 ea.) Introduction to Astrophysics
Physics 536, 537 (3 ea.) Space and Planetary Physics

*Must include at least 3 hours of engineering.
**Math. 411 can be taken in place of Math. 323.

Applied Mathematics/Statistics Option

The ability to analyze, evaluate, and solve complex problems using modern mathematical/computational tools is an invaluable asset to the chemical engineer. This option provides the student with an opportunity to increase his ability to use mathematics and/or statistics as a working, problem-solving tool beyond the minimum required level.

Required Courses (9 hours)
Chem. Eng. 550, 673
Math. 323 (3) Applied Partial Differential Equations
Elective Courses (5-6 hours)
Comput. Sci. 300 (3) Programming Systems Survey
Comput. Sci. 451 (3) Information Systems Analysis
Math. 322 (3) Topics in Applied Mathematics
Math. 385 (3) Linear Algebra
Math. 411 (3) Numerical Methods
Stat. 332 (2) Statistical Methods Used in Engineering
Stat. 432 (3) Quality Control and Industrial Statistics
Stat. 520 (3) Theory of Statistics I

Industrial Option

This option gives the student training related to industrial engineering and operations management. The student must complete 14-16 hours as listed below.

Required Courses (7 hours)
Chem. Eng. 550, 683**
Stat. 332 (2) Statistical Methods in Engineering
Elective Courses* (7-9 hours)
Chem. Eng. 510, 520, 677
Bus. Mgt. 461 (3) Advanced Operations Analysis in Business Management
Bus. Mgt. 463 (3) Advanced Operations Management

*Students must take two of the business classes.
**This course is normally taken during the Spring Term following Chem. Eng. 464.

Chemical Engineering Technician

Course Requirements

This course required for the Associate of Science (A.S.) degree as a chemical engineering technician are summarized below. This course sequence can be completed in a two-year period.

First Year	F	W	Sp
Chem. Eng. 100, 101	1½	1½	
Chem. Eng. 273			3
Chem. Eng. 291R	0	0	
Chem. 105, 106	4	4	
Engl. 111			3
Health 130			2
Math. 121, 122	3	3	
Physical education	½	½	
Physics 105, 106, 107, 108	4	4	
Rel. 121, 122	2	2	
	15	15	8

Second Year	F	W
Chem. Eng. 291R	0	0
Chem. Eng. 498R or Co-op		2
Chem. 223	5	
Comput. Sci. 130		3
Des. Tech. 111	2	
Engl. 316		3
Hist. 170		3
Humanities		2
Math. 223	3	
Mfg. Tech. 335 or Lab. elective	3-4	
Religion	2	2
	15-16	15

Students completing requirements for the A.S. degree may complete a B.S. degree in Chemical Engineering with 84 additional semester hours if they have satisfactory academic standings. The required courses are available in the department, and course outlines will be worked out individually.

Work Required to Obtain a B.S. Degree after an A.S. Degree in Chemical Engineering

Biology	4
Chemical Engineering	26
Chem. 351, 352, 353, 461, 462, 464	15
Humanities	4
Math. 113, 214, 321	10
Physical education	1
Religion	6
Social science	5
Engineering electives	4
Electives	9
	84

M-3 Program

At the end of the sophomore year or during the junior year of the Chemical Engineering curriculum, a student who desires to obtain a master's degree in chemical engineering (either M.E. or M.S.) may elect to enter the M-3 program. The purpose of the M-3 program is to afford the student greater flexibility in scheduling his course work than is normally available through the traditional B.S. degree followed by M.E./M.S. degree program. In this program the student may work toward both the bachelor's and master's degrees simultaneously and receive both simultaneously upon graduation at the end of his program (normally five years from freshman matriculation). At the end of the sophomore year the student must have a cumulative GPA of 2.70 or more. All credit to be counted toward the master's degree must carry a cumulative GPA of 3.00 or better.

Prior to completion of the final 30 hours of course work, the student will submit a formal application for admission to the Graduate School. At this time the student must obtain certification from the undergraduate dean's office that he has only 30 hours remaining to be completed for his program. Upon certification the student will register in the Graduate School.

Prior to completion of the final 15 hours of course work, the student must file with the Graduate School a final course outline which specifically identifies all technical elective courses and which bears the signatures of his advisory committee. The form for this may be obtained from the department secretary.

Interested students should contact the department graduate coordinator for procedures, application forms, and other details.

Courses

100. Introduction to Chemical Engineering I. (1½:1:1)
The engineering profession; slide rule; field trips to selected industries. Project work and introduction to machine computation.

101. Introduction to Chemical Engineering II. (1½:1:1)
Problem-solving techniques; graphical and numerical methods; materials; stoichiometry; introduction to FORTRAN programming.

110. Energy and Society. (1-3:1-3:0)
History and future of traditional energy sources. Development and technology of new energy sources.

273. Chemical Process Principles. (3:3:0) Prerequisites: Chem. Eng. 101; Chem. 106 or 112; concurrent registration in Physics 121.
Material and energy balances.

291R. Undergraduate Seminar. (0:½:0 ea.)
College and department seminar, department discussions, interchange with faculty, professional activities. Required each semester for freshman, sophomore, and junior chemical engineering majors.

373. Chemical Engineering Thermodynamics I. (3:3:0) Prerequisites: Chem. 461; concurrent registration in Chem. Eng. 273.
First and second laws of thermodynamics, with applications to the behavior of real fluids. Physical and chemical equilibrium.

374. Unit Operations I. (3:3:0) Prerequisites: Chem. Eng. 273; Math. 321.
An introduction to fluid mechanics, including process flow, hydraulic equipment, solids handling, and size reduction.

376. Unit Operations II. (3:3:0) Prerequisite: Chem. Eng. 374.
Heat and mass transfer, including conduction, convection, radiation, diffusion; steady and unsteady state; transport analogies; design applications.

378. Science of Engineering Materials. (3:3:0) Prerequisite: Chem. 106 or 112.
Principles underlying the behavior and governing the properties of materials, as related to engineering applications.

464. Chemical Engineering Plant Design and Economics. (3:3:0) Prerequisite: Chem. Eng. 476.
Design of chemical engineering machinery; plants and/or processes requiring the application of unit operations; chemical process principles; economic analysis.

474. Chemical Engineering Thermodynamics II. (2:2:0) Prerequisites: Chem. Eng. 373; concurrent registration in Chem. 462.
First and second laws of thermodynamics, with applications to real fluids; physical and chemical equilibria.

475. Unit Operations Laboratory I. (2:0:6) Prerequisite: Chem. Eng. 376.
Experimental verification of unit operations design principles; data collection and reduction; report preparation.

476. Unit Operations III. (3:3:0) Prerequisite: Chem. Eng. 376.
Stage operations, distillation, extraction, and absorption; design applications.

477. Unit Operations Laboratory II. (2:0:6) Prerequisite: Chem. Eng. 476.
Experimental verification of unit operations design principles; data collection and reduction; report preparation.

478. Chemical Engineering Kinetics. (3:3:0) Prerequisites: Chem. Eng. 474; Chem. 462.
Theories and applications of chemical kinetics in catalytic and noncatalytic reacting systems.

491R. Seminar. (½:1:0 ea.)
Technical presentations by advanced students, faculty, and invited guests. Required of all majors in the senior year.

493R. Special Topics—Undergraduate. (1-3:1-3:Arr. ea.) Prerequisite: consent of instructor.
Investigation of special topics of interest in chemical engineering. Offered on demand.

498R. Special Problems—Undergraduate. (1-3:Arr.:Arr. ea.) Prerequisite: consent of instructor.

499R. Undergraduate Thesis Research. (1-3:Arr.:Arr. ea.)

510. Energy and Fossil Fuels. (3:3:0) Prerequisite: concurrent registration in Chem. Eng. 464 or special permission.
Energy sources and demands; energy processes, costs, and relation to environment; design applications and case studies, with emphasis on coal gasification and shale oil recovery.

520. Air Pollution Control. (3:3:0) Prerequisite: concurrent registration in Chem. Eng. 464 or special permission.

Investigation of causes and effects of air pollution: standards, criteria and legislation; dispersion, meteorology and atmospheric chemistry. Includes design project and use of impact statements.

550. Synthesis and Optimization of Chemical Processes. (3:3:0) Prerequisites: Previous or concurrent registration in Chem. Eng. 464.

Synthesis of chemical processes from process components together with process optimization, including economic factors.

582. Introductory Nuclear Engineering. (3:3:0) Prerequisites: Chem. 106 or 112; Math. 214; Physics 221. Barker, Rogers

Principles and application of nuclear reactor design.

583. Nuclear Engineering. (2:2:0) Prerequisite: Chem. Eng. 582.

Reactor design, including reactor physics, heat transfer, engineering materials, instrumentation, and control.

672. Advanced Fluid Mechanics and Rheology. (3:3:0) Prerequisites: Math. 645; Chem. Eng. 673. Hanks

673. Transport Phenomena. (3:3:0) Prerequisites: Chem. Eng. 476; Math. 323. Hanks, Smoot

674. Advanced Thermodynamics and Calorimetry. (2:2:0) Prerequisite. Chem. 561. Christensen

675. Thermodynamics of Multicomponent Systems. (3:3:0) Prerequisite: Chem. 561. Christensen, Hanks, Wilson

676. Advanced Diffusional Operations. (3:3:0) Prerequisites: Chem. Eng. 673; Chem. 561; Math. 323. Clark, Pope

677. Creative Skills in Chemical Engineering. (1:1:0) Barker, Horton

681. Kinetics and Catalysis. (3:3:0) Prerequisite: Chem. Eng. 478. Horton, Pope

683. Advanced Plant Design and Economics. (2:2:0) Prerequisite: Chem. Eng. 464. Glassett, Pope

691R. Seminar for Master's Students. (1:1:0 ea.)

693R. Special Topics—Graduate. (1-3:Arr.:Arr. ea.)

698R. Special Problems—Graduate. (2-6:0:0 ea.)

699. Thesis for Master's Degree. (Arr.:Arr.:Arr.)

☐Chemistry 769. Selected Topics in Physical Chemistry. (1-3:1-3:0)

791R. Seminar for Doctoral Students. (1:1:0 ea.)

793R. Selected Topics in Chemical Engineering. (1-3: Arr.:Arr. ea.)

799. Dissertation for Doctoral Students. (Arr.)

Chemistry

Distinguished Professor: Hall
Professors: Anderson, Bills, Blackham, Bradshaw, Broadbent, Bryner (emeritus), Butler (Chairman, 226 ESC), Castle, Cluff, Goates, Gubler, Hawkins, Izatt, Mangum, Nelson, Ott, Peterson (emeritus), Smith, Snow, Swensen, Vernon (Assistant Academic Vice-President-Research), White, (Biochemistry Graduate Coordinator, 695 WIDB), Wilson.
Adjunct Professor: Reed J. Jensen
Associate Professors: Dalley, Hansen, Mangleson, Nordmeyer, Paul, Thorne, (Graduate Coordinator, 116 ESC), Wing (emeritus), Woolley.

Graduates in chemistry obtain positions in virtually every industry, and those who have imagination and intellectual curiosity are in special demand to fill research positions. The curriculum in chemistry is both rigorous and intellectually rewarding.

B.S. Degree. A student who wishes to graduate with a major in chemistry approved by the American Chemical Society must successfully complete the following courses: Chem. 111, 112, 113, 114, 351, 352, 354, 355, 461, 462, 464, 491, 514, 523 or 551, 594 (1 hour), and two additional courses chosen from 481, 484, or any of the 500-series chemistry courses to make a total of 41 hours in chemistry.

Required supporting courses include Math. 112, 113, and 214; Comput. Sci. 131; and Physics 121, 122, 214, and 221. Students with exceptional mathematics preparation and those anticipating advanced work in theoretical chemistry should consider taking the series Math. 141, 142, 243, and 244 in place of Math. 112, 113, and 214.

Elective courses should be selected after consultation with an adviser. Some recommendations are as follows: additional advanced chemistry courses, including undergraduate research; German 101 and 102, or Comput. Sci. 231, especially for those planning for graduate study; Chem. Eng. 273 for those planning to work in industry after the B.S. degree; Math. 321 and Physics 222, particularly for those specializing in physical chemistry; and additional biological science courses, particularly for those interested in biochemistry or in preparing for medical school.

B.A. Degree. A less intensive major, which meets the minimum University requirements, can be obtained by successfully completing Chem. 111, 112, 113, 114, 351, 352, 353 (2 hours), 461, 462, 464, and 481 or 514 or 521. Required supporting courses include Math. 112, 113, and 214, and Physics 121, 122, 214, and 221. This degree is particularly suited for a student who is preparing for secondary teaching. Interested students should see the "Education" section of this catalog for specific requirements.

General. No more than 3 hours of D credit in chemistry may be counted toward the requirements of either of the majors in chemistry. For either major Chem. 105, 106, and 223 may be substituted for Chem. 111, 112, 113, and 114 by special permission of the department. The final 10 hours of chemistry credit required for either degree must be taken at BYU.

A minor in chemistry consists of Chem. 111, 112, 113, 114, (or 105, 106, 223), plus any one of the following sequences: Chem. 351, 352, 353 (2 hours); 461, 462, 464; 252, 481. No more than 5 hours of D credit in chemistry will be counted in meeting this minor requirement.

For details concerning the program for graduate study leading to the M.S., M.A.-3, and Ph.D. degrees in chemistry, students should consult the **Graduate School Catalog.**

A few scholarships, including the John Einar Anderson scholarships, are available to qualified chemistry majors.

Suggested Sequence of Courses (B.S. Degree)
Four-Year Program

First Year	F	W
Chem. 111, 112	3	3
Chem. 113		3
Math. 112, 113*	4	4
Comput. Sci. 131		3
Engl. 111	3	
Health 130	2	
Religion 121, 122	2	2
Physical education	½	½
	14½	15½

Second Year	F	W
Chem. 351, 352	3	3
Chem. 114, 354	3	2

Math. 214	3	
Physics 121, 122	3	3
Engl. 316	3	
Religion	2	2
Physical education	½	½
History		3
Elective		3
	17½	16½

Third Year	F	W
Chem. 355	2	
Chem. 461, 462	3	3
Chem. 464		2
Physics 221	3	
Physics 214		1
Religion	2	2
General education	6	6
Elective		3
	16	17

Fourth Year	F	W
Chem. 491		1
Chem. 514	3	
Chem. 523 or 551**	(3-4)	(2)
Chem. 594R	½	½
General education	3	3
Electives	2-6	7-10
Religion	1	1
Advanced chemistry	2-3	2-3
	16½	16½

Suggested Sequence of Courses (B.S. Degree)
Three-Year Program***

First Year	F	W	Sp
Chem. 111, 112	3	3	
Chem. 113, 114		3	3
Chem. 351			3
Math. 112, 113*	4	4	
Physics 121, 122		3	3
Engl. 111	3		
Health 130	2		
Comput. Sci. 131		3	
Relig. 121, 122	2	2	
Physical education	½	½	
Total hours	14½	18½	9

Second Year	F	W	Sp
Chem. 352	3		
Chem. 354, 355	2	2	
Chem. 461, 462		3	3
Chem. 464			2
Math. 214	3		
Hist. 170		3	
Physics 221	3		
Physics 214	1		
Engl. 316		3	
Religion	2	2	2
Physical education	½	½	
General education and electives	3	3	
Total hours	17½	16½	7

Third Year	F	W	Sp
Chem. 594R	½	½	
Chem. 514		3	
Chem. 523 or 551**	3-4	2	
Chem. 491		1	
Other chemistry	1-3	3	
Religion	2	2	
General education and electives	4-10	2-11	8
Total hours	17½	16½	8

*Students with inadequate high school preparation in mathematics will take Math. 110 in their first semester and the math series here suggested will be shifted back one semester.

**Chem. 551 is recommended for those students whose interests are primarily in organic or biochemistry; Chem. 523 is for those whose primary interest is in analytical, inorganic, or physical chemistry.

***Ordinarily a student must take up to 6 hours of credit in addition to that taken in six semesters and three Spring terms.

Courses

100. Elementary College Chemistry. (3:3:0) Home Study also. (G-PS)
An introduction to the structure of matter and the chemical consequences of that structure. For nonscience majors.

102. Introductory Chemistry. (5:5:0) (G-PS)
A course designed primarily for students in the biological sciences who require a rather broad introduction to topics in general, inorganic, and organic chemistry relevant to the study of biology at the molecular level. The course content is selected specifically as a preparation for Chemistry 281.

103. Introductory Chemistry Laboratory. (1:0:3) (G-PS) Prerequisite: completion of or concurrent registration in Chemistry 102.
A course in manipulative laboratory techniques required for the performance of simple classical experiments in general and organic chemistry.

105, 106. General College Chemistry. (4:4:0, 4:3:3) (G-PS m) Prerequisite: completion of or concurrent registration in Math. 110R.
A standard full-year general chemistry course primarily for students in engineering and the biological sciences.

111, 112. Principles of Chemistry. (3:4:0 ea.) F.W. (G-PS m) Prerequisite: completion of or concurrent registration in Math. 110R. High school chemistry and physics are strongly recommended.
The recommended first-year course for majors in chemistry, chemical engineering, and physics and for majors in the biological sciences who desire a more fundamental and mathematical approach than is provided in the standard general chemistry course.

113, 114. Introductory Analytical Chemistry. (3:1:6 ea.) F.W.Sp. (G-PS m) Prerequisites: for Chem. 113, concurrent registration in Chem. 112; for 114, completion of Chem. 112 and 113.

223. Quantitative and Qualitative Analysis. (5:3:6) (G-PS m) Prerequisite: Chem. 106 or consent of instructor.
A course emphasizing the principles of chemical equilibrium, quantitative chemical measurements, and qualitative detection of selected chemical elements.

252. Introductory Organic Chemistry. (5:4:3) (G-PS m) Prerequisite: Chem. 106.
General principles of organic chemistry for students outside the physical sciences whose disciplines require supporting background in chemistry.

281. Introductory Physiological Chemistry. (3:3:0) (G-PS m) Prerequisite: Chem. 102.
Intended as the second-semester course in a sequence with Chem. 102. Students with more extensive preparation in these areas should register for Chem. 481.

284. Physiological Chemistry Laboratory. (2:0:6) Prerequisite: Chem. 281.

304. Methods of Glass Manipulation. (1:0:3) Prerequisite: consent of instructor.

351, 352. Organic Chemistry. (3:3:0 ea.) (G-PS m) Prerequisite: Chem. 106 or 113.
A standard one-year organic chemistry course for

majors in chemistry, chemical engineering, and the biological sciences.

353. Organic Chemistry Laboratory. (1-2:0:3-6) Prerequisite: Chem. 351. For predentistry (1 credit), premedicine (2 credits), and others.

354, 355. Organic Chemistry Laboratory. (2:0:6 ea.) Prerequisites: Chem. 351; 352 and 354; respectively.
For chemistry and other science majors.

461, 462. Physical Chemistry. (3:3:0 ea.) (G-PS m) Prerequisites: Chem. 112 or 223; Physics 221; Math. 113 or 242; and previous or concurrent registration in Math. 214 or 243.

464. Physical Chemistry Laboratory. (2:0:6) (m) Prerequisite: completion of or concurrent registration in Chem. 462.

481. Biochemistry. (4:4:0) Prerequisites: Chem. 252 or 353.
An introductory course for undergraduate chemistry majors or for students in any of the Biological Sciences who contemplate pursuing advanced degrees, including medicine.

484. Biochemistry Laboratory. (2:0:6) Prerequisites: Chem. 481.
Classical procedures and instrumentation used in biochemical research.

491. Chemical Literature. (1:1:0)

501. Symmetry in Chemistry. (2:2:0)

514. Inorganic Chemistry. (3:3:0)

518. Inorganic Syntheses. (2:0:6)
Offered 1975-76 and alternate years.

521. Analytical Chemistry. (2:2:0) Prerequisite: Chem. 464.

522. Chemical Instrumentation. (2:0:6)

523. Instrumental Analysis. (2:1:3) Prerequisite: completion of or concurrent registration in Chem. 464.

551. Systematic Identification of Organic Compounds. (3-4:2:3-6)

552. Advanced Organic Chemistry. (3:3:0)

561. Chemical Thermodynamics. (3:3:0) Prerequisite: Chem. 462.

562. Advanced Chemical Thermodynamics. (2:2:0) Prerequisite: Chem. 561.
Offered 1975-76 and alternate years.

563. Reaction Kinetics. (2:2:0)

564. Nuclear and Radiochemistry. (2:2:0) Prerequisite: Chem. 462.
Offered 1976-77 and alternate years.

565. Introduction to Quantum Chemistry. (3:3:0) Prerequisite: Chem. 462.

594R. General Seminar. (½:1:0 ea.) Required of all senior A.C.S. approved majors and graduate students in chemistry every semester in residence.

598. Special Problems. (Arr.) Registration by permission.

600. Directed Teaching in Chemistry. (1:1:0)

601. Geometry of Atoms and Molecules. (2:2:0) Prerequisite: Chem. 501.

611. Chemistry of Main-Group Elements. (3:3:0)

612. Chemistry of Transitional Elements. (3:3:0)

658. Organic Synthesis. (3:1:6)

685, 686. Advanced Biochemistry. (3:3:0 ea.)

687. Advanced Biochemistry Laboratory. (2:0:6)

694R. Biochemistry Seminar. (1:1-2:0 ea.)

697R. Master's Candidate Research. (Arr.)

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

719. Selected Topics in Inorganic Chemistry. (1-3:1-3:0)

729. Selected Topics in Analytical Chemistry. (1-3:1-3:0)

751. Mechanisms of Organic Reactions. (3:3:0)

757. Chemistry of Natural Products. (3:3:0)

758. Heterocyclic Compounds. (3:3:0)

759. Selected Topics in Organic Chemistry. (1-3:1-3:0)

761. Statistical Mechanics. (3:3:0)

765. Quantum Chemistry. (3:3:0) Prerequisite: Chem. 565. Recommended: Chem. 501.

769. Selected Topics in Physical Chemistry. (1-3:1-3:0)

789. Selected Topics in Biochemistry. (1-3:1-3:0)

797R. Doctoral Candidate Research. (Arr.)

799. Dissertation for the Ph.D. Degree. (Arr.)

Child Development and Family Relationships

Professors: Cannon, Knowles, Moss (Chairman, 1239 SFLC), Porter, Rollins.
Associate Professors: Allred, Burr, Cahoon, Hoopes, Mead, Scoresby, Thomas, Vance.
Assistant Professors: Bahr*, Barlow, Black, Larsen, Lewis, Tanner, Taylor.
Instructors: Tyndall, Zollinger.

The Department of Child Development and Family Relationships seeks to make a contribution to the goals of Brigham Young University by preparing students to be successful family members and by preparing students to be child and family professionals.

Two majors are offered at the undergraduate level: one in Early Childhood Education and one in Child Development and Family Relationships. Courses at the undergraduate level provide (1) knowledge and insights concerning basic developmental and behavioral characteristics of the child from conception to adulthood and concerning dating, courtship, marriage, and family behavior throughout the family life cycle and (2) help in developing skills in working with children and families.

Requirements for the Department Majors

The Early Childhood Education Major is a cooperative program involving the Child Development and Family Relationships Department and the Department of Elementary Education. This major provides the student with certification to teach preschool, kindergarten, and first through sixth grades of elementary school. Requirements include the five-phase program of the Elementary Education curriculum, the 16 hours of "other related course work" specified by Elementary Education for certification, and 22 hours of course work in Child Development and Family Relationships (commonly referred to as CDFR). Phase IV in Elementary Education (Education 400—the student teaching experience) must be completed in 1st, 2nd, and 3rd grades. Required classes in CDFR are 211 (or 210), 321, 362, 410; 2-3 hours from 305, 310, 312, 430, 445, and 492; and either CDFR 323 and 422 or Education 533 and 578R. Program guides and advisement for this major are available in the College of Family Living Advisement Center and in the Teacher Clearance Office Advisement Center.

The Child Development and Family Relationships Major is organized to train students to be effective family members and child and family professionals. Course requirements call for 16-19 required hours from CDFR 210, 361, 410, 460, 492, and FEHM 295; at least 10 hours in CDFR electives, to be chosen from any undergraduate CDFR classes not required above; and 14 hours of elective related course work from other departments to complete a total of 40 hours for the major. How many elective classes from other departments are selected depends upon how many elective hours are chosen in CDFR. This major also allows the student freedom to select 30 or more elective hours above and beyond General Education and the CDFR major requirements. Students taking this major and seeking vocational activity will find it in various kinds of positions: industry, YWCA, YMCA, hospitals, social welfare, and public and private organizations dealing with human relationships, families, and children—wherever there is a need for someone skilled in working with people.

Requirements for a Minor in CDFR

CDFR 210, 361; one course from 410, 445, or 460; and CDFR electives to total 14 hours constitute a minor in CDFR. BYU social work majors desiring a CDFR minor are required to take CDFR 210, 361, 445; and 5 elective hours from CDFR 310, 312, 360, 410, 440, or 460.

The CDFR department is one of the leading departments in this area in the nation. Professionally recognized faculty, excellent facilities in child development laboratories, and opportunities for experience arranged through the Family Consultation Center and other resources provide bases for sound experience.

Graduate Program:

At the graduate level, programs are offered in child development, in family relationships, and in marriage and family counseling. Emphasis may also be given to early childhood education and/or family life education as negotiated with the department. The graduate program is organized on a competency base, copies of which are available through the graduate secretary's office (232 SFLC).

Undergraduate students with any thought of doing graduate work within the department should examine the graduate requirements or visit the graduate secretary's office (232 SFLC) for help in determining elective hours of most benefit. Especially relevant are basic theory and research courses in the social sciences.

Courses

130. Human Social Behavior. (1:0:2) Prerequisite: freshman standing. Cannon, Counseling Service

Emphasis is placed on experiential learning in developing an improved ability to develop close relationships and a more favorable self concept.

210. Child Development. (3:3:1) Home Study also. (G-SS m)

Consideration of the growth and development of the child and his relationships with his family, peers, and teachers from infancy through adolescence. One hour observation per week as part of preparation.

211. Growth and Development of the Pre-School-Age Child. (3:3:1) (m)

Growth and development of the young child and his relationships with his family and peers from conception to school age. Credit cannot be given for course work in both 210 and 211.

261. The Latter-day Saint Family. (3:3:0) Home Study also. (m)

Place of the family in LDS doctrine and philosophy, together with application of basic religious principles to marriage and family relationships. A comparison of LDS and non-LDS families in time and space.

305. Development in Infancy. (3:2:2) (m) Prerequisite: CDFR 210, Zool. 205. Barlow, Larsen

Physical, cognitive, and social developmental characteristics during the first 18 months with implications for guidance and care in the family unit.

310. Child Development in Subcultures. (2:2:0) (m) Prerequisite: CDFR 210. Moss, Price, Zollinger

Intellectual, social, emotional, and physical development of children, as affected by subcultural phenomena.

312. Principles of Child Guidance. (2:2:0) Home Study also. (m) Prerequisite: CDFR 210. Mead, Zollinger

Application of knowledge and understanding of child behavior and psychodynamics of family interaction to the guidance of children. Behavior and guidance principles are studied directly in the human development laboratories. Helpful to parents and prospective parents.

321. Nursery School and Kindergarten Experience. (4:0:8) Prerequisites: CDFR 210. Application required one semester in advance.

Students will spend four weeks assisting in nursery school and four weeks assisting in kindergarten. Block plan class.

322. Creative Experiences with Children. (3:2:6) (m) Prerequisites: CDFR 210. Application required one semester in advance. Barlow

Designed to promote increased self-understanding, to develop skills in working with children, and to furnish experience in the use of creative play materials through participation in the child development laboratories.

323. Organization and Planning for Preschool Programs. (3:3:0) (m) Prerequisites: CDFR 210. Application required one semester in advance. Taylor

Consideration of factors involved in the development of preschool programs. Study of essential procedures in preschool planning, including housing, curriculum, equipment, guidance, health protection, and food service. Field trip.

330. General Introduction to Women's Studies. (3:2:1) (m) Tyler

An examination of the emerging body of knowledge relating to the status of women, their history, images, roles, and socialization.

360. Achieving Success in Marriage. (3:3:0) Home Study also. (G-SS m) Cannon, Knowles

Consideration of maturity, love, compatibility, conflict, specific areas of adjustment in marriage, parent-child relationships, and effective management of family resources.

361. Family Relationships. (3:3:0) (G-SS m) Bahr

Consideration of the interaction and interpersonal relations through the various stages of the family life cycle and the influence of the family on its members in the development of values, goals, attitudes, and patterns of behavior.

362. The Child in the Family. (3:3:0) (m)

Family influence upon values, goals, attitudes, and role behavior of children and implications for the child's operation in educational systems.

410. Advanced Child Development. (3:2:2) (m) Prerequisites: CDFR 210, 361; Psych. 111 or Sociol. 111, Zool. 205.

Physiological, intellectual, social, and emotional development of the pre-school and school-age child. Two hours of observation and discussion of pre-school and school-age children required each week.

422. Methods and Teaching Experiences in the Human Development Laboratory. (4:2:8) Application required one semester in advance.

Experience in teaching and supervising a group of nursery school children. Lab fee required.

430. Community and Professional Responsibilities to Children and Families. (2:2:0) Prerequisite: CDFR 410 or 460. Knowles
Acquaintance with resources of the community, as they relate to the welfare of children and families. A consideration of the responsibilities of professional persons working with children and families.

440. Family Life in the Middle and Later Years. (2:2:0) (m) Prerequisite: CDFR 361. Knowles
Adjustments in middle and later years revolving around physical, emotional, and social changes. Emphasis is placed upon needs that arise from changes in family relationships, living arrangements, and employment.

445. Modifying Family Behavior: Principles and Practices. (3:3:0) Prerequisites: CDFR 210, 361, or consent of instructor. Allred, Mead
Principles and practices in altering disturbing behavior patterns of children within the family framework. Observations of family counseling provided.

460. Marriage and Family Interaction. (3:3:0) (m) Prerequisites: CDFR 360, 361; Sociol. 111 or Psych. 111. Burr, Cannon, Moss
An advanced appraisal of courtship, marriage relationships, and family interaction. A professional course designed primarily for majors in CDFR and related fields.

461. The Family and the Law. (3:3:0) (m) Prerequisite: CDFR 360 or 361.
Consideration of legal aspects of marriage and family life, such as marriage statutes, property rights, separation and divorce, adoption, custody of children, wills, etc.

492. Seminar in Theory and Concepts. (2:2:0) (m)
Evaluation and integration of basic theories and concepts in CDFR. Designed especially for senior students in CDFR.

501R. Workshop in Child Development. (1-2:1-2 wks., 8 hrs./day:0 ea.) Prerequisite: 8 hours in CDFR or consent of department chairman.
Intensive study in the application of principles of child development and child guidance.

502R. Workshop in Family Relationships. (1-2:1-2 wks., 8 hrs./day:0 ea.) Prerequisite: 8 hours in CDFR or consent of department chairman.
Intensive study in the application of principles of family relationships.

503R. Workshop in Marriage and Family Counseling. (1-2:1-2 wks., 8 hrs./day:0 ea.) Prerequisite: 8 hours in CDFR or consent of department chairman.
Intensive study in the application of principles of marriage and family counseling.

514. Theories of Child Development. (3:3:0) (m) Prerequisite: CDFR 410. Price
An intensive investigation of theoretical frameworks, models, and concepts of dominant contemporary theories in child development.

530. Problems of Teaching Marriage and Family Relationships in College. (2:2:0) Knowles, Moss

540. Introduction to Theories for Marriage and Family Counseling. (3:3:0) Prerequisite: CDFR 460. Recommended: CDFR 461. Allred, Hoopes, Mead, Scoresby
Individual and interpersonal theories of counseling as they pertain to premarital and marital dyads.

555R. Beginning Practicum in Marriage and Family Counseling. (3:2:2-4 ea.) Prerequisites: CDFR 540 and consent of instructor. Allred, Hoopes, Lewis
Experience in counseling individuals, premarital and marital dyads, and families.

560. Advanced Family Relationships. (3:3:0) (m) Prerequisite: CDFR 460. Burr, Cannon, Thomas
Analysis of theories and research about the premarital dyad, the marital dyad, and family interaction.

590R. Readings in Child Development and Family Relationships. (1-2:1-2:0) Prerequisites: CDFR 410 or 460 and consent of instructor.
Discussions and reports of current readings in this field.

595R. Special Topics in Child Development and Family Relationships. (1-2:1-2:0) Prerequisites: CDFR 410 or 460 and consent of instructor.
Individual study for qualified students majoring in child development and family relationships, upon consultation with the instructor and the department chairman.

596R. Research Methodology. (3:2:2 ea.) Prerequisites: CDFR 410 or 460; Stat. 552 (concurrent registration permitted). Bahr, Burr, Rollins, Thomas
Principles of research methodology applied to the identification, evaluation, creation, and utilization of empirical knowledge in child development-family relationships.

610. Physical and Intellectual Development of Children. (3:3:0) Prerequisite: CDFR 514. Larsen

611. Emotional and Social Development of Children. (3:3:0) Prerequisite: CDFR 514.

622R. Supervision and Administration in Early Childhood Education. (2:2:TBA ea.) (m) Prerequisites: CDFR 210, 323, 422. Cahoon, Taylor

623. Curriculum Development in Preschool Education. (2:2:2) Prerequisites: CDFR 323, 422; Ed. 301. Cahoon, Jones, Vance

630. Parent Education. (2:2:0) Prerequisite: CDFR 410 or 460. Knowles

640. Theories of Counseling Marital Dyads in Groups. (3:3:0) (m) Prerequisite: CDFR 540. Hoopes, Scoresby

649. Systems Analysis for Marriage and Family Counseling. (3:2:2) (m) Prerequisites: CDFR 445, 540. Hoopes, Mead, Scoresby

655A,B. Intermediate Practicum in Marriage and Family Counseling. (1-4:1:6 ea.) Prerequisites: CDFR 540 and consent of instructor. Hoopes, Mead, Scoresby

660. Dynamics of Parent-Child Interaction. (2:1:2) Rollins

661. Dynamics of Family Interaction. (2:2:0) Prerequisite: CDFR 560. Burr, Moss

662. Dynamics of Marital Interaction. (2:2:0) Prerequisite: CDFR 560. Burr, Mead, Rollins

663. Critical Problems in Family Life. (2:2:0) Prerequisite: CDFR 560. Cannon

665. The Premarital Dyad. (2:2:0) Prerequisite: CDFR 560. Cannon

691R. Seminar in Child Development. (1-2:1-2:0 ea.)

692R. Seminar in Family Relationships. (1-2:1-2:0 ea.)

696R. Advanced Research Methodology. (2:1:2 ea.) Prerequisites: CDFR 596R; Stat. 554. Burr, Rollins, Vance

697R. Independent Research. (1-3:1-3:0 ea.) Prerequisites: CDFR 596R; Stat. 554.

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

730. Seminar in Family Life Education. (2:1:2) Prerequisite: consent of instructor. Knowles, Moss, Porter

740. Theory Building in Marriage and Family Counseling. (3:3:0) (m) Prerequisite: CDFR 540. Mead, Scoresby

749. Supervision in Marriage and Family Counseling. (3:2:2) (m) Prerequisites: CDFR 540, 649. Hoopes, Scoresby

755A,B. Advanced Practicum in Marriage and Family Counseling. (1-4:1:6-10 ea.) (m) Prerequisites: CDFR 740 and consent of instructor. Allred, Lewis, Scoresby

760. Concepts and Theories of Marriage and the Family. (3:3:0) Prerequisite: CDFR 560. , Burr, Moss, Rollins

791R. Seminar in Child Development. (1-2:1-2:0 ea.) Prerequisite: must be a Ph.D. student in child development.

792R. Seminar in Family Relationships. (1-2:1-2:0 ea.)

793R. Seminar in Marriage and Family Counseling. (1-2:1-2:0 ea.)

794. Special Topics in Child Development. (1-2:1-2:0)

795. Special Topics in Family Relationships. (1-2:1-2:0)

799. Dissertation for the Ph.D. Degree. (Arr.)

Civil Engineering Science

Professors: C. Barton, J. Barton (Chairman, 368 C ESTB), Budge, Christiansen, Firmage, Fuhriman, Karren, Rollins, Stutz.
Associate Professors: Durrant, Merritt, Wilson.
Assistant Professors: Calder, Goodwin, Miller, Naylor, Thurgood.

The Department of Civil Engineering Science offers professional programs leading to the degrees of Bachelor of Science in civil engineering, Master of Engineering, Master of Science, and Ph.D. For details concerning programs for graduate study leading to the M.S., M.Eng., and Ph.D. degrees in civil engineering, students should consult the **Graduate School Catalog.** The curriculum is accredited by the Engineers' Council for Professional Development (ECPD) as a professional engineering curriculum.

Course work is offered in the areas of (1) solid mechanics and materials, (2) soil mechanics and foundation engineering, (3) structural mechanics and structural engineering, (4) highway and transportation engineering, (5) water resources, and (6) environmental engineering. The professional education at BYU emphasizes a strong science foundation in physics, chemistry, and mathematics. Application of mathematics is accomplished early in the program through a correlation with physics, beginning in the freshmen year. An understanding of civil engineering problems on an elementary but fundamental level is afforded the student in the freshman and sophomore years. The student is also provided with a well-balanced program of social studies, religion, biological sciences, and humanities.

The extensive background of the faculty will prove valuable to those who wish to undertake special projects in their undergraduate work or research topics in their graduate work. Seminar work and participation in technical meetings sponsored by student organizations provide a rich beginning for a career in civil engineering. Professional opportunities upon graduation in this field exist in research and development, design, construction, sales engineering, teaching, business management, and many other areas.

Entrance Requirements

For both the general entrance requirements of the University and the particular requirements specified for the College of Physical and Engineering Sciences, see those sections of this catalog.

Grade Requirements

To receive the B.S. degree in civil engineering, a student must complete courses satisfying University and departmental requirements, including a minimum cumulative grade-point average of 2.0 (C). A cumulative average grade of C or better must be maintained in all engineering subjects; otherwise, the student is placed on probationary status in the department. No more than nine hours of D credit in engineering subjects may be counted toward graduation. A student must achieve an average of C or better in each area of chemistry, mathematics, and physics.

General Education Requirements

Engineering students are subject to all of the general education requirements listed in this catalog, with the following exceptions and suggestions:

1. The biological science requirement for all engineering science majors is four semester hours. Civil engineers will meet the biological sciences requirement by taking Micro. 121 and 381 for a total of 5 credit hours.
2. It is recommended that the student take Econ. 110, Psych. 111, or Sociol. 111 in satisfying the social science group requirements.

Civil Engineering Technician

Associate Degree (A.S.)

Civil engineering technicians are valuable employees in the various areas of civil engineering. They work closely with professional engineers in industrial firms, government agencies, and consulting organizations. They are often individually responsible for obtaining and analyzing data, operating equipment, planning and carrying out experiments, and so forth. They are able to perform tests, solve mathematical and engineering formulas, make accurate measurements, and supervise the work of others. The program listed below will provide the basic educational preparation necessary to perform much of the work encountered.

First Year	F	W	S
Civ. Eng. 100A,B	½	½	
Engl. 111			3
Health 130			2
Math. 121, 122	3	3	
Des. Tech. 111			2
Physics 105, 107	4		
Physics 106, 108		4	
Religion	2	2	2
Physical education	½	½	
Chem. 105, 106	4	4	
	14	14	9

Second Year	F	W
Civ. Eng. 200A, B	½	½
Engl. 316	3	
Math. 223	3	
Hist. 170		3
Civ. Eng. 211, 212	2	2
Humanities		2
Civ. Eng. 201, 303	2	3
Religion	2	
Des. Tech. 212	3	
Civ. Eng. 305		3
Civ. Eng. 321		3
	15½	16½

Students completing the A.S. degree requirements may find it desirable to complete the work for a B.S. degree in civil engineering. The requirements listed below are a minimum, and the additional 70 hours may be completed in two additional years with proper planning. Each student is advised to decide as early as possible in his first two years of study and to seek the help of an adviser.

Work Required to Obtain a B.S. Degree after A.S. Degree in Civil Engineering (Minimum)

Religion	6
Humanities	4

Biological science	5
Social science	5
Math. 113, 214, 321	10
Physical education	1
	31

Civ. Eng. 391A, B	1
Civ. Eng. 304	3
Civ. Eng. 332	3
Geol. 330	3
plus 4th year	29
	39

Requirements for the Bachelor of Science Degree

The student first enrolls in the general curriculum of civil engineering and continues in a prescribed technical program for three years. In the fourth year, he has the opportunity of selecting technical electives to strengthen a chosen field of interest. Also, in the fourth year, the student may elect to begin study for the reguler Master of Science or Master of Engineering degree.

All students must satisfy the general education requirements of the University and the departmental requirements, including 9 hours of technical electives, in order to earn the B.S. degree. This will normally take the student four academic years to complete. The departmental course requirements are given in the technical flow chart which may be obtained from the department office in 368 ESTB. This chart also indicates the technical prerequisite requirements for each course. Single connecting lines indicate prerequisites, and double connecting lines indicate corequisites. A typical sequence of courses for the standard four-year program is also given herein.

The student who has sufficient high school preparation in graphics and mathematics may begin these programs with Des. Tech. 212 and Math. 112, respectively. If not sufficiently prepared, the student must take Des. Tech. 111 and Math. 111 as beginning courses. It is recommended that the student take Hist. 170 and Health 130 by examination.

Engineering students may register for 18 hours, exclusive of physical education, in any one semester without obtaining special permission.

Typical Civil Engineering Bachelor of Science Program

First Year	F	W
Engl. 111; Gen. ed.	3	3
Math. 112, 113	4	4
Physics 121, 122	3	3
Civ. Eng. 100A, B	½	½
Des. Tech. 212; Gen. ed.	3	3
Religion	2	2
Physical education	½	½
Health 130*		2
Total hours	16	18

Second Year	F	W
Math. 214, 321	3	3
Civ. Eng. 201, 303	2	3
Civ. Eng. 211, 212	2	2
Civ. Eng. 200A,B	½	½
Chem. 105, 106	4	4
Religion	2	2
Physical education	½	½
Micro. 121		3
Hist. 170*	3	
Total hours	17	18

Third Year	F	W
Civ. Eng. 310, 304	2	3
Civ. Eng. 321, 332	3	3
Geol. 330; Micro. 381.	3	2
Elec. Eng. 301, 302	2	2
Engl. 316; Civ. Eng. 305	3	3
General education		3
Religion	2	2
Civ. Eng. 391A,B	½	½
Physics 221	3	
Total hours	18½	18½

Fourth Year	F	W
Civ. Eng. 471		3
Civ. Eng. 432, 431	2	3
Civ. Eng. 423, 424	3	2
Civ. Eng. 341	3	
Civ. Eng. 461	3	
Technical elective	3	6
Civ. Eng. 491A,B	½	½
Religion	1	1
General education	2	
Total hours	17½	15½

*Hist. 170 and Health 130 may be taken by examination to lighten the academic load in the first and second years.

Nine credits of technical electives may be selected from 400 or 500 series courses in civil engineering. Courses in other departments may be taken for the technical elective requirement if approved by the Department of Civil Engineering Science.

Three-Year Program for the Bachelor of Science Degree

Under the new BYU calendar the department will offer courses so that the student may complete a B.S. program in three academic years by attending certain Spring and Summer terms. A typical three-year program is outlined below:

Typical Program

First Year	Su	F	W	Sp
Des Tech. 212	3			
Civ. Eng. 100A,B		½	½	
Math. 112, 113, 214, 321	4	4	3	3
Physics 121, 122, 221		3	3	3
Engl. 111; Civ. Eng. 201, 211		3	2	2
General education		3	3	
Religion	2	2	2	
Physical education		½		½
Health 130; Chem. 105		2	4	
Total hours	9	18	17½	8½

Second Year	F	W	Sp
Civ. Eng. 200A,B	½	½	
Civ. Eng. 303, 304, 305	3	3	3
Civ. Eng. 212, 321	2	3	
Chem. 106; Elec. Eng. 301, 302	4	2	2
Micro. 121, 381	3	2	
Civ. Eng. 332; Geol. 330		3	3
Religion; Eng. 316	2	3	
Physical education	½	½	
General education	2		
Total hours	17	17	8

Third Year	F	W	Sp
Civ. Eng. 431, 432	3	2	
Civ. Eng. 423, 424	3	2	
Civ. Eng. 341, 471	3	3	
Civ. Eng. 461; Hist. 170	3		3
Technology elective	3	6	
Civ. Eng. 391A,B	½	½	
Religion	2	2	2
General education			3
Total hours	17½	15½	8

Hist. 170 and Health 130 taken by examination and general education (3 credit hours) taken through Home Study can eliminate the third year Spring Term.

M-3 Program

At the end of the sophomore year or during the junior year of the civil engineering curriculum, a student who desires to obtain a master's degree in civil engineering (either M.E. or M.S.) may elect to enter the M-3 program. The purpose of the M-3 program is to afford the student greater flexibility in scheduling his course work than is usually available through the traditional B.S. degree followed by a normal M.E./M.S. degree program. In this program the student may work toward both the bachelor's and master's degrees simultaneously and receive both simultaneously upon graduation at the end of his program (normally, five years from freshman matriculation). At the end of the sophomore year, the student must have a cumulative GPA of 2.5 or more in his civil engineering program. All credit to be counted toward the master's degree must carry a cumulative GPA of 3.0 or better.

Prior to completion of the final 30 hours of course work the student will submit a formal application for admission to the Graduate School. At this time the student must obtain certification from the undergraduate dean's office that he has only 30 hours remaining to be completed for his program. Upon certification the student will register in the Graduate School.

Prior to completion of the final 15 hours of course work the student must file with the Graduate School a final course outline which specifically identifies all technical elective courses and which bears the signatures of his advisory committee and the graduate coordinator or the department chairman. The form for this may be obtained from the department secretary.

Interested students should contact the Department Graduate Coordinator for procedures, application forms, and other details.

Prearchitecture Curriculum Program

Brigham Young University does not have a school of architecture. It does, however, provide opportunities for the prearchitecture student to take basic required courses in English, languages, history, art, sociology, mathematics, physics, chemistry, graphic communication, engineering, and environmental design, which are normally acceptable by all accredited schools of architecture without loss of credit.

Three alternatives are open to the prearchitecture candidate who wishes to achieve a professional degree in architecture.

1. Pursue up to three years of a prearchitecture curriculum; then, transfer into an accredited school of architecture to complete an additional three years of professional training leading to the Master of Arts degree.
2. Pursue not more than one year of prearchitecture curriculum training; then, transfer to an accredited school of architecture to complete not fewer than four additional years of professional training leading to the Bachelor of Arts degree.
3. Earn a B.S. or B.A. degree in one of several acceptable major fields; then, transfer into an accredited school of architecture to complete an additional three years of professional training leading to the Master of Arts degree.

As of early 1972, approximately thirty of the accredited schools of architecture have adopted a six-year program culminating in the Master of Arts degree. A three-year prearchitecture curriculum specifically selected to meet the requirements of each of these schools will usually permit entrance at the fourth-year level in most of these schools. Certain of these schools also require the earning of a B.S. or B.A. degree as a part of the final three years of the professional master's degree program. It is unlikely that more than one year's prearchitecture curriculum can be programmed at Brigham Young University or at any other major university not having a school of architecture to meet the requirements of the remaining thirty-five to forty schools of architecture that currently offer five-year bachelor's degree programs.

It is usually possible to enter the final three years of any of the six-year master's degree programs in architecture with a valid B.A. or B.S. degree in a rather wide variety of majors, such as English, art, language, engineering, environmental design, music, sociology, psychology, etc. However, there are certain basic courses in the architectural curriculum that must be included in the baccalaureate degree to insure acceptance for transfer as a part of this earned degree.

It is essential that the prearchitecture candidate select the school or schools of architecture into which he may wish to transfer as early as possible. Individual correlation must then be made with these schools to determine what specific basic courses must be taken at Brigham Young University to meet the entrance requirements of the professional portion of their architectural programs.

Courses

100A,B. Introduction to Civil Engineering I. ($\frac{1}{2}$:1:0 ea.)
Introduction to the fields and profession of civil engineering, the principles involved in solving engineering problems, and slide rule utilization.

200A,B. Introduction to Civil Engineering II. ($\frac{1}{2}$:1:0 ea.)
Continuation of Civ. Eng. 100A,B. Introduction to various computational methods, as applied to Civil engineering projects.

201. Engineering Mechanics—Statics. (2:2:0) Home Study also. Prerequisite: Physics 121.
Introductory concepts of mechanics: force systems in equilibrium, resultants, friction, centroids, moments of inertia, virtual work.

211. Elementary Surveying. (2:1:3) Prerequisites: Math. 111, Des. Tech. 212.
Lectures and fieldwork in measurements of distances, angles, and differences of elevation using the usual survey methods and instruments; preparation of notes; surveying calculations; simple traverse; use of the plane table.

212. Engineering Surveying. (2:1:3) Prerequisite: Civ. Eng. 211 or equivalent.
Advanced surveying theory, including curves, earthwork, plane coordinate systems, public land surveys, and astronomical observations.

301. Engineering Mechanics—Statics and Mechanics of Materials. (3:3:0) Prerequisites: Physics 121, Math 113
Force systems; equilibrium laws; centroids and moments of inertia; friction; stresses and deflection in beams; columns; torsion; principal stresses.

303. Engineering Mechanics—Mechanics of Materials. (3:2:3) Home Study also. Prerequisite: Civ. Eng. 201.
Fundamental concepts in terms of elastic stress and strain relations; cylinders and spheres; torsion; beam theory, including bending stresses; deflections; two-dimensional elastic theory.

304. Engineering Mechanics—Dynamics. (3:2:3) Home Study also. Prerequisite: Civ. Eng. 201 or 301.
Concepts of dynamics applied to particles, systems of particles, rigid bodies, vibration systems, nonrigid particles systems. Vector notations used in the treatment of all topics.

305. Properties of Materials. (3:2:3) Prerequisite: Civ. Eng. 303.
Physical testing of materials; introduction to failure theories and solid-state concept of behavior of materials; the mechanics of deformation.

310. Introduction to Civil-Engineering Design. (2:1:3)
Problem definition and typical procedures in engineering analysis and design. Application of the digital computer to civil-engineering problems.

321. Elementary Structural Theory. (3:3:0) Home Study also. Prerequisite: Civ. Eng. 201 or 303 or consent of instructor.
Loads on structures; beams; trusses; influence diagrams; three-dimensional analysis; cable systems; approximate analysis of frames; deflections.

332. Hydraulics and Fluid Flow Theory. (3:3:0) Prerequisite: Civ. Eng. 201.
Fluid properties, fluid statics and dynamics, viscous flow, and boundary layer concepts. Application of theory to pipe and open-channel flow.

341. Elementary Soil Mechanics. (3:2:3) Prerequisites: Civ. Eng. 303, 332; Geol. 330; or consent of instructor.
Physicochemical characteristics of soils. Permeability, seepage and associate uplift pressures. Consolidation and strength theory; shearing strengths of sand and clay; earth pressure theories; slope stability analysis.

391A,B. Civil Engineering Seminar. (½:1:0 ea.)
Group discussion of technical and professional activities of the civil engineering profession. Participation by faculty, professional engineers, advanced students, and other invited personnel.

422. Theory of Statically Indeterminate Structures. (3:3:0) Prerequisite: Civ. Eng. 321.
Work and energy methods; moment distribution; slope deflection; influence lines.

423. Structural Steel Design. (3:2:3) Prerequisites: Civ. Eng. 305 and 321.
Theory and design of structural steel and other structural metals using elastic and plastic design concepts. Stress analysis and design of beams, stiffened girders, tension and compression members, and their connections.

424. Reinforced Concrete Design. (2:2:0) Prerequisite: Civ. Eng. 321.
Theory and design of reinforced concrete, including columns, beams, slabs, retaining walls, and footings; elastic and ultimate-strength methods of analysis.

431. Hydrology. (3:2:3) Prerequisite: Civ. Eng. 332.
Water as it occurs in nature; relationships between precipitation, evaporation, infiltration, transpiration, groundwater, and stream runoff.

432. Hydraulic Engineering. (2:2:0) Prerequisite: Civ. Eng. 332.
Application of the principles of fluid mechanics to the design of hydraulic structures.

442. Foundation Engineering. (3:2:3) Prerequisite: Civ. Eng. 341.
Subsurface exploration, bearing capacity concepts, settlement of structures, and basic principles of foundation design.

451. Sanitary Engineering. (3:2:3) Prerequisites: Civ. Eng. 332, Micro. 381.
Applications of public health engineering to design, construction, and operation of water supply and sewage systems.

461. Highway Engineering. (3:2:3) Prerequisite: Civ-Eng. 341.
Highway planning, economy, and finance; traffic engineering characteristics; properties of highway materials; rigid and flexible pavement designs.

471. Professional, Economic, and Legal Problems in Engineering. (3:3:0)
Professional, legal, and economic problems of the engineering profession: contracts, specifications, accounting, feasibility studies, ethics.

491A,B. Civil Engineering Seminar. (½:1:0 ea.)
Technical and professional activities of the civil engineering profession. Required of all majors.

493R. Civil Engineering Practicum. (Arr.) Prerequisite: consent of instructor.

498R. Directed Studies in Civil Engineering. (Arr.) Prerequisite: consent of instructor.

501. Advanced Mechanics of Materials. (3:3:0) Prerequisite: Civ. Eng. 303
Introduction to strain energy methods; stresses and strains in beams, curved members; beams on elastic foundations; thick cylinders; torsion; structural members.

502. Advanced Properties of Materials. (3:3:0) Prerequisite: Civil Eng. 305 or equivalent.
Mechanics of deformation and fracture of solids; mechanical behavior of materials correlated with atomic scale mechanisms; creep, residual stresses, and fatigue.

503. Applied Elasticity. (3:3:0) Prerequisites: Civ. Eng. 303, Math. 321.
Analysis of stress and strain; equations of equilibrium and compatability; generalized Hooke's Law; energy theorems.

505. Concrete—Its Materials, Uses, and Properties. (3:2:3) Prerequisite: consent of instructor.
Manufacturing and testing of cements; concrete materials and concrete mix design; techniques of concrete handling, placing, and treatment; laboratory work.

507. Experimental Stress Analysis. (3:2:3) Prerequisite: Civ. Eng. 303.
Experimental methods of stress determination and their applications to static engineering problems. Mechanical gages; brittle lacquers; electric resistance strain gages; photoelasticity and photostress techniques.

513. Photogrammetry. (3:2:3) Prerequisite: Civ. Eng. 212.
Use of terrestrial and aerial photographs to produce maps; vertical and oblique photography and mapping procedures; stereoscopic viewing and measurements for relative position of objects in three dimensions; photo interpretation; sources of errors.

527. Matrix Methods in Structures. (3:2:3) Prerequisite: Civ. Eng. 422.
Development of the stiffness and flexibility methods of structural analysis using linear algebra and the digital computer.

528. Finite Element Analysis. (3:3:0) Prerequisite: Civ. Eng. 527 or consent of instructor.
Development of finite elements for an elastic continuum; applications using matrix algebra; consideration of plates, shells, and frameworks using the digital computer.

531. Water Resources Engineering. (3:2:3) Prerequisites: Civ. Eng. 431, 432.
Principles of planning and basic design of hydroelectric, flood control, irrigation, drainage, and multipurpose projects involving the utilization of water resources.

550. Water Quality Management. (3:3:0) Prerequisite: consent of instructor.
Philosophies, objectives, and methods of water quality management; impact of various uses on water quality; behavior of pollutants in receiving waters.

555. Sanitary Engineering Analysis. (3:1:6) Prerequisites: Civ. Eng. 451, Micro. 381, or equivalent.
Analytical techniques involved in chemical and biological analysis of the major organic and inorganic constituents of water, sewage, and industrial wastes.

561. Geometric Design of Highways. (3:3:0) Prerequisite: Civ. Eng. 461.
Theory and practice in designing visual aspects of highways. Highway classification, design controls and criteria, and elements of design. Geometrics of vertical and horizontal alignment, cross section and intersections and interchanges. Capacity analysis.

565. Transportation in Urban Planning. (3:3:0) Prerequisite: consent of instructor.
Importance of transportation in urban development

and planning. Street classification and function. Design elements of streets, intersections, and access drives. Transportation planning studies. Land use transportation interrelationships.

610. Theory and Design of Plates. (3:3:0) Prerequisite: Civ. Eng. 303.

612. Structural Stability. (3:3:0) Prerequisite: Civ. Eng. 303.

615. Structural Dynamics (3:3:0) Prerequisite: Civ. Eng. 304.

620. Advanced Structures—Theory and Design. (3:3:0) Prerequisite: Civ. Eng. 422.

621. Thin Shell Structures. (3:3:0) Prerequisites: Civ. Eng. 422, 424.

622. Design of Bridge Structures. (3:2:3) Prerequisites: Civ. Eng. 341, 422, 423, 424.

623. Prestressed Concrete. (3:3:0) Prerequisites: Civ. Eng. 422, 424.

625. Design of Multistory Structures. (3:2:3) Prerequisites: Civ. Eng. 341, 422, 423, 424, or consent of instructor.

632. Advanced Hydrology. (3:3:0) Prerequisites: Civ. Eng. 431, 432, or equivalent.

633. Hydraulic Design of Water Control Structures. (3:3:0) Prerequisite: Civ. Eng. 432.

634. Flow in Open Channels. (3:3:0) Prerequisite: Civ. Eng. 332.

641. Advanced Soil Mechanics. (3:3:0) Prerequisites: Civ. Eng. 341, 442, or equivalent.

643. Earth- and Rock-Fill Structures. (3:3:0) Prerequisite: Civ. Eng. 341 or equivalent.

644. Advanced Foundation Engineering. (3:3:0) Prerequisite: Civ. Eng. 641.

646. Flow of Fluids through Porous Media. (3:3:0) Prerequisites: Civ. Eng. 332, 341.

652. Design of Water Treatment Works. (3:3:0) Prerequisite: Civ. Eng. 555 or equivalent.

653. Design of Sewage Treatment Works. (3:3:0) Prerequisite: Civ. Eng. 451 or equivalent.

654. Industrial Waste Treatment. (3:3:0) Prerequisites: Civ. Eng. 451, 555; or equivalent.

661. Traffic Engineering: Characteristics and Operations. (3:3:0) Prerequisite: Civ. Eng. 461 or consent of instructor.

663. Pavement Design. (3:3:0) Prerequisite: Civ. Eng. 461 or equivalent.

691R. Civil Engineering Seminar. (½:1:0 ea.)

694R. Selected Problems in Civil Engineering. (1-3:Arr.:Arr. ea.)

697R. Research in Civil Engineering. (2:Arr.:Arr. ea.)

698R. Directed Studies in Civil Engineering. (Arr.) Prerequisite: consent of instructor and/or Master's Graduate Committee.

699. Thesis for Master's Degree. (Arr.)

794R. Selected Topics in Civil Engineering. (1-3:Arr.:Arr. ea.)

797R. Research for Doctoral Students. (Arr. ea.)

799. Dissertation for Doctoral Students. (Arr.)

Clothing and Textiles

Associate Professor: Jorgensen.
Assistant Professors: Childs, Lee, Liechty, Lind (Chairman, 3256 SFLC), Thackeray.
Instructors: Carter, Domgaard (emeritus), Pottberg, McMinn, Thompson.

The clothing and textiles curriculum is designed to help the student understand clothing as it relates to the needs of individuals and families and to provide training in the textile and apparel industries. A knowledge of textiles is emphasized as an aid to wide selection and effective use and care of clothes. Expression of creative abilities is encouraged in the designing, selection, and construction of clothing.

Careers open to majors in this field vary with individual aptitudes and experience and with the choice of appropriate courses from allied departments. Professional opportunities are found in demonstration work, dress designing, dressmaking, fashion illustration, fashion merchandising, fashion promotion, garment manufacturing, institutional purchasing, textile designing, textile promotion, textile testing, and theater costuming. Students may also prepare for graduate study which can lead to positions in the fields of college teaching, research, and extension services.

Selected junior and senior students in the department have the opportunity to enhance their training in the area of textiles and textile technology by attending North Carolina State University at Raleigh, North Carolina, for a semester or one year. Students who are interested should contact the department chairman.

Campus Couture, sponsored by the department, provides opportunity for practical experience in designing and constructing garments for others. Majors are strongly advised to seek employment at Campus Couture for at least one semester. Employees are selected on the basis of their performance in clothing construction and design classes and successful completion of Clo. and Text. 265.

Major Requirements

Majors are required to complete a minimum of 28 or more credit hours in the Clothing and Textiles Department and are encouraged to take at least 1 course in each of the following supporting departments within the College of Family Living: Child Development and Family Relationships, Food Science and Nutrition, Interior Environment, and Family Economics and Home Management. Students must also complete the general education requirements prescribed by the University, including a foreign language (8-12 hours) or the math.-stat.-logic.-sci. (6 hours) requirement.

Students selecting Options 1 or 4 will receive the Bachelor of Science degree. Those selecting Options 2 or 3 will receive the Bachelor of Arts degree.

Transfer students should complete at least 10 credit hours of work in this department to qualify for graduation.

In order to graduate, a student must maintain an overall GPA of at least 2.0, with no hours of D credit in the major department.

Minor Requirements

Students who choose clothing and textiles as their minor field of study must have their programs approved by this department. They must complete 14 credit hours, with at least one course in three of the following four areas:

Construction: Clo. and Text. 165, 235, 265, 355, 520R.
Design and selection: Clo. and Text. 110, 221, 300, 345, 350.
History and economics: Clo. and Text. 330, 430, 472, 473, 474, 478.
Textiles: Clo. and Text. 260, 360, 490.

Options

Four options, aimed at providing background and training for particular professional opportunities, are included in the clothing and textiles major. These are: (1) fashion merchandising, (2) fashion design, (3) clothing and textiles and communications, and (4) general clothing and textiles.

Option One—Fashion Merchandising

The course work offered in this area is designed to provide specialized training for those seeking positions such as buyer, assistant buyer, comparison shopper, fashion coordinator, and fashion promoter.

Freshman	**Hours**
Relig. 121, 122	4
Engl. 111	3
Physical education	1
Health 130	2
Biological science	3
Chem. 100	3
Psych. 111 or Sociol. 111	3
Comms. 110	2
Comms. 102	2
Clo. and Text. 110, 165	6
Elective	3
Total hours	32

Sophomore	**Hours**
Religion	4
Engl. 215	3
Physical education	1
Acctg. 201	3
Econ. 110	3
Physics 177	3
Bus. Mgt. 241	3
Clo. and Text. 260	3
Clothing and textiles electives	3
Electives	6
Total hours	32

Junior	**Hours**
Religion	4
Humanities	2
Biological science	3
Bus. Mgt. 256	3
Clo. and Text. 360, 472	5
Clothing and textiles electives	3
Electives	12
Total hours	32

Senior	**Hours**
Religion	2
Hist. 170	3
Org. Behav. 321	3
Clo. and Text. 473, 474, 490	6
Clothing and textiles electives	2
Electives	16
Total hours	32

Approximately 32 credit hours are allowed for electives, which should include at least one course in each of the other departments within the College of Family Living. Of the 128 hours total, 40 hours must be upper-division credit.

Option Two—Fashion Design

The following program is planned for students interested in apparel* or theatrical costume designing.

Freshman	**Hours**
Relig. 121, 122	4
Engl. 111	3
Physical education	1
Health 130	2
Biological science	3
Psych. 111, Sociol. 111, or Econ. 110	3
Chem. 100	3
Humanities	2
Clo. and Text. 110, 165	6
*Art Ds. 102, 103, 106	6
or	
Theatre 123, 126	4
Total hours	31-33

Sophomore	**Hours**
Religion	4
Engl. 215	3
Physical education	1
Biological science	3
Physics 177	3
Psych. 111, Sociol. 111, or Econ. 110	3
Clo. and Text. 260	3
Clothing and textiles electives	2
*Art and design electives	3
Electives	7
Total hours	32

Junior	**Hours**
Religion	4
Humanities	4
Clo. and Text. 265, 330, 345	8
*Art and design electives	4
or	
Theatre 362	2
Electives	12
Total hours	32

Senior	**Hours**
Religion	2
Clo. and Text. 350, 355, 490	6
Clothing and textiles electives	3
*Int. Env. 425	3
or	
Theatre 460R, 461R, 564 or 565	6
Electives	16-19
Total hours	32

Select a combination of electives that will complete a total of 128 hours, including at least one course in each of the other departments within the College of Family Living.

*Those who are interested in apparel designing should take art classes.

Option Three—Clothing and Textiles and Communications

The following program is recommended for students who are interested in promotion areas, such as advertising, copy writing, and fashion reporting.

Freshman	**Hours**
Relig. 121, 122	4
Engl. 111	3
Physical education	1
Health 130	2
Biological science	3
Chem. 100	3
Psych. 111, Sociol. 111, or Econ. 110	3
Comms. 101	2
Comms. 102	2
Clo. and Text. 110, 165	6
Elective	3
Total hours	32

Sophomore	**Hours**
Religion	4
Engl. 215	3
Physical education	1
Psych. 111, Sociol. 111, or Econ. 110	3
Physics 177	3
Biological science	3

Comms. 201, 211	5
Clo. and Text. 260	3
Clothing and textiles electives	3
Electives	4
Total hours	32

Junior	Hours
Religion	4
ArtDs. 311 or 312	3
Comms. 230, 331	5
Clo. and Text. 330, 360, 472	8
Ind. Ed. 250	3
Electives	9
Total hours	32

Senior	Hours
Religion	2
Hist. 170	3
Comms. 334, elective	5
Clo. and Text. 430, 490	4
Clothing and textiles electives	4
Electives	14
Total hours	32

Select a combination of electives that will complete a total of 128 hours, including at least one course in each of the departments within the College of Family Living.

Option Four—General Clothing and Textiles

The general clothing and textiles concentration provides training for such positions as consulting with commercial companies, teaching in stores and trade schools, extension services, and custom dressmaking.

Freshman	Hours
Relig. 121, 122	4
Engl. 111	3
Physical education	1
Health 130	2
Biological science	3
Chem. 100	3
Psych. 111, Sociol. 111, or Econ. 110	3
Humanities	4
Clo. and Text. 110, 165	6
Electives	3
Total hours	32

Sophomore	Hours
Religion	4
Engl. 215	3
Physical education	1
Econ. 110, Psych. 111, or Sociol. 111	3
Physics 177	3
Clo. and Text. 235, 260, 265	7
Electives	11
Total hours	32

Junior	Hours
Religion	4
Humanities	2
Biological science	3
Clo. and Text. 300, 330, 345	8
Clothing and textiles electives	3
Electives	12
Total hours	32

Senior	Hours
Religion	2
Hist. 170	3
Clo. and Text. 350, 355, 490	6
Clothing and textiles electives	3
Electives	18
Total hours	32

Select a combination of electives that will complete a total of 128 hours, including at least one course in each of the other departments within the College of Family Living.

Courses

105. Elementary Clothing Construction. (1:1:2)
Unit method of clothing construction applied to simply designed cotton apparel. A service course for nonmajors with little or no sewing experience. Materials: approximately $15.

110. Selection and Care. (2:2:1) (m) Carter, McMinn, Thompson
Design elements related to apparel selection; principles of wardrobe planning, buying, and care; personal analysis for self-improvement.

165. Dress and Pattern Construction. (4:2:8) (m) Carter, Lee, Lind, Thompson
Principles of flat pattern design, fitting, and clothing construction applied to a tailored dress and an afternoon or evening dress. Materials: $50 or more.

221. Weaving. (2:1:3) Lind
Creative design applied to weaving methods. Survey of handwoven fabrics in various world cultures. Student provides yarns, which cost $15 to $50.

235. Children's Clothing. (2:1:3) (m) Prerequisite: Clo. and Text. 165. Lee
Selection, design, and construction of children's clothing, as related to the child's developmental needs.

260. General Textiles. (3:3:1) (m) Childs, Lee, Thackeray
Natural and synthetic texile fibers; yarns, fabric construction, dyes, and finishes, with application to the purchase, use, and performance of textile fabrics.

265. Couture and Mass Production Techniques. (2:1:4) Prerequisites: Clo. and Text. 110, 165. Liechty
Adapting apparel design and construction techniques to couture and mass production methods. Scheduled laboratory experience with Campus Couture.

300. Clothing the Family. (2:2:0) (m) Prerequisite: at least 3 hours in the social sciences or one class in CDFR. Childs, Thackeray
Physical, social, and psychological needs related to clothing for family members at various age levels. Coordinating family resources to solve family clothing problems.

330. History of Costume. (3:3:0) (m) Jorgensen
Social, economic, and political influences on dress through the ages. Analysis of costume as an expression of life styles and as a basis for interpreting modern fashions.

345. Draping and Flat Pattern Design. (3:2:4) (m) Prerequisites: Clo. and Text. 110, 165, 260. Recommended: Clo. and Text. 330. Liechty
Creative design, achieved through techniques of flat pattern and draping on an individualized dress form. Student provides materials, which cost $50 or more.

350. Apparel Design. (2:2:2) (m) Prerequisites: Clo. and Text. 110, 165, 330, 345. Childs, Liechty
Creative experiences in designing apparel for different production processes and price levels. Student provides materials, which cost $25 or more.

355. Tailoring. (3:3:0) (m) Prerequisites: Clo. and Text. 165, 260. Jorgensen, Liechty
Custom and commercial tailoring techniques applied to construction of a coat and a suit. Student provides materials, which cost $75 or more.

360. Intermediate Textiles. (3:2:2) Prerequisites: Clo. and Text. 260, Chem. 100 or equivalent. Lee, Thackeray
Performance testing of textiles by standard test procedures.

430. Historic Textiles. (3:3:0) (m) Prerequisite: Clo. and Text. 260. Liechty
History of the design and production of fabrics as an expression of man's cultural achievements.

472. Fashion Industry. (2:2:0) (m) Prerequisite: 9 hours in clothing and textiles. Recommended: Econ. 110. Jorgensen
Development of the fashion movement—its relation to manufacturing and consumption of clothing. Garment production, fashion designers, fashion cycles, and trade organizations.

473. Clothing and Textiles Merchandising I. (3:3:0) Prerequisites: Clo. and Text. 260, 472; Acctg. 201; Bus. Mgt. 241 or 256; Econ. 110. Carter, McMinn
The processes involved in planning and operating merchandising divisions in fashion retail stores.

474. Clothing and Textiles Merchandising II. (2:2:0) Prerequisite: Clo. and Text. 472. Recommended: Clo. and Text. 110, 165, 300, 360. Childs
Quality comparison of apparel, household textiles, and related merchandise available for retail selling. Aids in buying and selling.

478. Merchandising Practicum. (3:1:8) Prerequisites: Clo. and Text. 474 and consent of instructor. Carter, McMinn
In-service training in the merchandising division of a specialty or department store.

490. Seminar. (1:1:0) Prerequisites: 12 credit hours in major and consent of instructor.
Special reports and readings in clothing and textiles.

520R. Workshop in Clothing and Textiles. (1-3:Arr.:Arr. ea.) Prerequisite: consent of instructor.

595R. Special Topics in Clothing and Textiles. (1-3:Arr.:Arr.) Prerequisites: 15 semester hours in clothing and textiles and consent of instructor.

Communications

Professors: G. Barrus, Bateman, Bradley, Burnett (Chairman, D-501 HFAC), Haroldsen, Rich, Smith.
Associate Professors: Barney, Beckham, Fairbanks, Gibb, Peterson, Richardson, Stephan, Whiting.
Assistant Professors: Frost, Goodman, Hickman, Jerome, Johnson, Kagel, McKinlay, Mills, Porter, Tarbox, Wadsworth.
Instructors: W. Barrus, Seeley.
Special Instructors: Christensen, Czerny, Hampton, Hindmarsh, Monson, Searle, Stum, Walker, S. Whitaker, White.

In a major realignment of course work within the College of Fine Arts and Communications, speech communication courses formerly in the Department of Speech and Dramatic Arts are now included in the Department of Communications. This department is now responsible for interpersonal communication, rhetoric and public address, advertising, broadcasting, journalism, photography, and public relations. The realignment also brought the creation of a major program in film as a joint venture of the Department of Communications and the newly named Department of Theatre and Cinematic Arts. Because these changes came after catalog deadlines, the full effect of a revised curriculum is not reflected in these pages. Students should check with the Department of Communications for full details of that revised curriculum.

The Department of Communications now offers undergraduate majors in six related specialties of mass communication and three related specialties of speech communication. On the following pages are listed the requirements and courses of study pertaining to these two groups of majors, beginning with those in mass communication and concluding with those in speech communication. See speech communication programs and course listings following mass communication course listings.

Graduate Study

Each of the two divisions in the department offers a strong program of graduate study leading to the Master of Arts degree. Prospective students should consult the **Graduate School Catalog** and the department for full information. Application forms may be obtained at the office of the Graduate School, B-336 ASB.

Mass Communication

The professional programs in mass communication include a broad base of general education, thorough orientation in the processes, functions, and responsibilities of mass communication, and the development of skills in fact finding, analysis, and communication through the mass media.

Undergraduate concentrations leading to the degree of Bachelor of Arts are offered in the following: advertising, broadcasting, journalism, journalism education, photography, and public relations. In addition, the Associate in Arts degree is offered in a two-year program in photographic technology.

General Education

See the General Education Program section of this catalog for details regarding the University's general education requirements. Majors in mass communications must complete the following requirements as part of the general education program and departmental general education requirements:

Health—2 hours.
Physical education—2 hours.
Religion—2 hours per semester.

American history and government—6 hours, including Pol. Sci. 110 and either Hist. 121 or 170.

English—Engl. 111 in freshman year and Engl. 215 in sophomore year.

Biological science—6 hours.

Humanities—6 hours. Majors in broadcasting should take Theatre 121 (section for broadcasting majors) and Comms. 301 or 305. Comms. 301 is recommended for majors in journalism and public relations.

Physical science—6 hours. Recommended course is Physics 177 (prerequisite to photography courses).

Social science—6 hours, including Psych. 111 or Sociol. 111; Sociol.-Psych. 350.

Choice of either 6 hours from approved list in mathematics, logic, and statistics, or 8 hours from approved list in languages.

As an additional requirement in general education, each student majoring in communications must complete one course in statistics, chosen from the following: Psych. 370; Sociol 205; Stat. 221, 552.

Departmental Majors

Candidates for the degree of Bachelor of Arts in mass communications must complete a minimum of 32 hours of credit in the department, including 17 hours in the departmental core curriculum which is listed immediately below, and 15 or more hours as prescribed in one of the six concentrations offered. The requirements of these concentrations are listed in alphabetical order following the departmental core, along with groups of courses from supporting areas which are prescribed for majors in the respective sequences in lieu of academic minors. (An exception is the concentration of journalism education, in which case a teaching minor is selected from those listed in the Education section of this catalog.)

Departmental Core Curriculum (17 hours)

Comms. 101, 201, 211, 230, 255, 307, 480

Advertising Concentration

Candidates must complete a minimum of 33 hours in communications, including 17 hours in the departmental core and 16 hours in advertising courses as follows:

Required Advertising Courses

Comms. 331, 333, 334, 439, 495R
Plus 2 hours from the following list of electives:
Comms. 433, 434, 444, 510
Ind. Ed. 250 (3) Graphic Arts

Supporting Area Courses. In addition to the above, candidates in advertising must complete the following supporting courses:

Bus. Mgt. 241 (3) Introduction to Marketing (for non-business majors)

Bus. Mgt. 442 (4) Buying Behavior and Marketing Decisions

In addition to the above two courses, advertising students must complete 10 more hours in supporting courses. These courses should be selected in consultation with a faculty adviser and must have his approval. Courses should represent a logical grouping from one or more departments that give support to the student's career goals. Possibilities include course work from art and design, computer sciences, English, economics, business management, and psychology.

Broadcasting Concentration

Candidates must complete 39 hours in communications, including the 17 hours in the departmental core and the following 22 hours:

Comms. 272, 333, 334, 340, 346, 347, 449, 510
Electives—2 elective hours chosen, according to the student's interest, from the following specializations:
Broadcast Sales and Promotion
Comms. 444
Broadcast Performance
Comms. 453 or Theatre 424R (2-4) Acting for Motion Picture and Television
Production, Programming, and News
Comms. 450, 456

Supporting Area Courses. In addition to the above, candidates in broadcasting must complete the following courses:

Art and Design
102 (2) Basic Design for Nonmajors
Computer Science
105 (2) Computers and Their Use
Political Science
311 (3) State and Local Government and Politics

Journalism Concentration

Candidates must complete 32 hours in communications, including 17 hours in the departmental core and 15 hours in one of the following tracks:

Newspaper Journalism
Comms. 312, 323, 420
Electives—8 hours (Comms. 521 recommended)
Magazine Journalism
Comms. 312, 323, 427, 528
Electives—5 hours (Comms. 420 recommended)
Broadcast Journalism
Comms. 272, 312, 340, 420
Electives—5 hours (Comms. 521 recommended)
Supporting Area Courses

In addition to the above, candidates in journalism must complete 20 additional hours as follows:

9 hours from the social sciences in courses numbered 300 or above.

11 hours proposed by the student from one field or from several fields. These courses should relate to the student's goals and represent a logical plan of study, and they must be approved by an adviser.

Internship. Every student is encouraged to secure a professional internship with a professional news-gathering organization. Approval must be secured in advance. Up to 4 hours of credit may be earned in Comms. 495R for an internship. There will be a limited number of internships available at the **Daily Universe** and KBYU.

Journalism Education Concentration

This concentration is for students who wish to prepare for journalism teaching and student publication supervision in secondary schools. In addition to the teaching major in journalism, candidates must complete the teacher education courses prescribed for a secondary school teaching certificate and a teaching minor selected from the minors listed in the Education section of this catalog.

The teaching major in journalism totals 32 hours, including 17 hours in the departmental core and the following 15 hours:

Comms. 312, 323, 420
Electives—8 hours chosen from among Comms. 263, 272, 331, 335, 340, 346, 347, 365, 427, 434, 450, 521, 528, 550, and Theatre 317R and 478R.

Students who wish to specialize in educational broadcasting should consult their departmental adviser for additional guidance.

Photography Concentration

Before acceptance as a major in the photography concentration, a student—

1. must have completed, with at least a C+ grade, a basic photography course such as Physics 177 or equivalent and must pass a departmental examination in photography, prior to taking Comms. 263;
2. must have completed, with at least a C+ grade, ArtDs. 102 or equivalent;
3. must complete, with a B grade, Comms. 263, Photography Foundation I, before taking any other photography courses in the department.

Still-Photography Track. Candidates must complete 36 hours in communications, including 17 hours in the department core, and the following 19 hours:

Comms. 263, 264, 272, 365, 366, 368
Theatre 317R (2) The History of Motion Picture Art
Electives (3 hours)—Recommended: Comms. 369, 374.
Supporting Area Courses

In addition to the above, candidates in photography must complete the following related courses (15 hours):

Art and Design
102 (3) Basic Design for Nonmajors
Industrial Education
250 (3) Graphic Arts
Physics
177 (3) Physics of Light and Photography
Electives—6 hours chosen from among the following:
Business Management
241 (3) Introduction to Marketing
Industrial Education
453 (3) Photolithography
454 (3) Photo-screen Process Printing
Philosophy
110 (3) Foundations of Philosophical Thought

Cinematography Track. Candidates must complete 17 hours in the department core and the following 24 hours in the communications area:

A. Required (18 hours):
Comms. 263, 272, 374, 375
Theatre 317R (2) The History of Motion Picture Art

Theatre 424R (2-4) Acting for Motion Picture and Television
Theatre 478R (3) Writing for Motion Picture and Television

B. Electives (6 hours):
Comms. 264, 301, 331, 333, 335

Supporting Area Courses

In addition to the above, candidates in the cinematography concentration must complete the following related courses (16 hours):

ArtDs. 102 (2) Basic Design
Physics 177 (3) Physics of Light and Photography
Theatre 115 (2) Introduction to Theatre
Theatre 333 (3) Dramatic Theory
Ind. Ed. 250 (3) Graphic Arts
Ind. Ed. 351 (3) Typographic Layout and Design

Photographic Technician

Supervisor: W. Barrus

The two-year associate-degree program in photographic technology is designed to prepare technicians for service on the staffs of newspapers, magazines, industrial departments, and commercial and portrait studios. Training is provided in both camera and darkroom techniques for still photography, and supporting courses are offered in communications, cinematography, advertising, design, and graphic arts.

First Year	F	W
ArtDs. 102	3	
Comms. 101		2
Comms. 263		3
Engl. 111, 212 (or 215)	3	3
Health 130; Hist. 170	2	3
Ind. Ed. 250, 453	3	3
Physics 177	3	
Relig. 121, 122	2	2
	16	16

Second Year	F	W
Ind. Ed. 351	3	
Biological science		3
Comms. 264, 365	3	2
Comms. 272		2
Comms. 307		3
Comms. 366, 369	2	2
Comms. 495R		2
Physical education	½	½
Religion	2	2
Social science	3	
Theatre 317R	2	
Electives	2	
	17½	16½

Public Relations Concentration

Candidates must complete 32 semester hours in communications, including 17 hours in the departmental core, and the following 14 hours:

Comms. 312, 335, 336, 435.
Electives (3 hours)—Suggested courses are Comms. 331, 333, 340, 427, 495, and 528.

Supporting Area Courses

In addition to the above, candidates in public relations must complete 23 hours of supporting area courses. Students with special interests have some flexibility in choosing classes most useful for a particular career. Arrangements must be made, in advance, with the adviser. One way by which students may meet their supporting area requirements is to complete the following courses:

Computer Science
  105 (2) Computers and Their Use
Political Science
  311 (3) State and Local Government and Politics
Sociology
  223 (2) Racial and Minority Group Relations
  370 (3) The Sociology of Urban Life

Electives—13 hours chosen from the following:

Business Management
  241 (3) Introduction to Marketing
Economics
  110 (3) Economy, Society, and Public Policy
English
  218 (2) Creative Writing
  315 (2) Advanced Expository Writing
  316 (3) Technical Writing
Organizational Behavior
  321 (3) Fundamentals of Organizational Behavior
Psychology
  330 (2) Industrial Psychology
  365 (3) Motivation
Sociology
  245 (3) Population Problems
  352 (2) Collective Behavior

Supplementary Information on Mass Communication Programs

In addition to maintaining the minimum grade-point average required by the University, majors must maintain a grade-point average of 2.5 or higher in all work taken within the department. Courses in communications completed with a grade of D+ or below will not be accepted as filling requirements toward a major in the department.

Classroom instruction is combined with practical experience in real-life situations to prepare students for jobs and for advancement on the job. Students earn academic credit in journalism, photography, and advertising as they produce the campus laboratory newspaper, the **Daily Universe**. They earn credit, too, as they produce on-the-air shows over KBYU-FM and KBYU-TV, do market analyses for commercial stations, plan advertising campaigns for actual commercial clients, and grapple with the corporate image problems of industrial firms.

As a link between the student's academic preparation and his professional career, professional internships are arranged for qualified seniors and graduates. Through these internships, supervised experience is gained on the staffs of selected newspapers, magazines, radio and television stations, and advertising agencies and offices.

The department sponsors a series of lectures on communications to bring students in contact with leading professionals and scholars in the field of communications. Professional activities for students are fostered by departmental clubs and campus chapters of a number of national organizations, including the following: the Society of Professional Journalists (Sigma Delta Chi); Alpha Epsilon Rho, professional broadcasting fraternity; Kappa Tau Alpha, journalism scholarship society; the Public Relations Student Society of America; and the BYU Advertising Club, affiliated with the American Advertising Federation.

Requirements for a Minor

The general minor in communications includes a minimum of 16 credit hours selected from the core curriculum and one of the concentrations listed above. Comms. 101 and 211 are required of all minors.

The teaching minor in journalism (communications) includes 20 credit hours and is listed in the Education section of this catalog.

Mass Communication Courses

101. Introduction to Mass Communication. (2:2:0) Home Study also. (G-HA)

A survey of the media of mass communication and their functions in modern society: newspapers, magazines, motion pictures, radio and television, advertising, and public relations.

201. The Communications Process. (2:2:0) (G-HA)
Introduction to the theory of communications; the meaning of meaning; major contributions to communications theory.

211. News Writing. (3:2:3) Home Study also. Prerequisites: Engl. 111 or equivalent; score 23 on English portion of ACT or comparable achievement on department qualifying test; ability to type 40 wpm.
Principles of gathering, evaluating, and writing news for newspapers and broadcast media.

230. Introduction to Advertising. (2:2:1) Home Study also. Prerequisite: Comms. 211.
Principles of advertising and its role in American economy; values to advertisers and media. Newspaper and broadcast advertising emphasized.

255. Introduction to Broadcasting. (2:2:1)
McKinlay, Mills, Tarbox
Role of radio and television in modern society. Study of influences, current practices, social implications of the American system of broadcasting.

263. Photography Foundation I. (3:2:3) Prerequisites: Physics 177, ArtDs. 102 or Ind. Ed. 351.
Foundation in the application of camera and darkroom techniques to communications and artistic expressions. Emphasis on black-and-white photography.

264. Photography Foundation II. (3:2:3) Prerequisites: Physics 177, ArtDs. 102, Comms. 263.
Foundation in color photography. Emphasis on the basics of making color negatives and transparencies. Darkroom techniques in color printing provided.

272. Fundamentals of Motion-Picture Production. (2:0:4)
Elementary principles of motion picture production, including production planning, story boards, motion-picture photography and film editing. Laboratory projects using 8 mm equipment.

307. Communications Law. (3:3:0)
Legal rights, privileges, and regulations of press, radio, television, and films; libel, contempt, copyright, rights of privacy; decisions of regulatory bodies.

312. Reporting. (3:2:6) Prerequisite: Comms. 211.
News evaluation; interviewing; fact gathering; beat coverage of courts, government, education, labor, and business.

323. Editing. (2:2:4) Prerequisite: Comms. 312.
Copy editing, headline writing, page makeup, photo editing, and handling wire copy.

331. Advertising Copy and Layout. (3:3:1) Prerequisite: Comms. 230.
Reader interest, sales appeal, and production techniques for advertising in print and position media. Students design retail and product advertisements for typical publications.

333. Broadcast Advertising. (3:3:1) Prerequisites: Comms. 230, 255, 331.
Advertising principles for broadcast media; study of research; audience measurement. Writing commercials, programs, spot announcements; time buying, production, transcription, and film services.

334. Retail Advertising. (3:3:0) Lab included. Prerequisite: Comms. 230.
Planning and preparing advertising programs, advertising layouts. Advertising philosophy of the retail market place.

335. Public Relations. (3:3:0) Home Study also. Prerequisite: Comms. 211 or consent of instructor.
Philosophy and practice of public relations in business, governmental, educational, and other institutions. Study of publics, media, methods, press relations, and publicity.

336. Public Relations Case Studies. (3:3:0) Prerequisite: Comms. 335.
Case studies in public relations. Cases are selected from a wide range of actual public relations problems which have confronted business, governmental, educational, and service institutions.

340. Broadcast News. (3:2:4) Prerequisite: Comms. 211. Recommended: Comms. 272, 312.
News preparation and production of newscasts and public affairs programs. Consideration of interviews, documentaries, commentaries, editorials, and special events. Practical and laboratory experience provided.

346. Broadcast Practicum I. (2:2:2) Prerequisite: Comms. 255 or qualifying examination.
Instruction and laboratory practice in planning, writing, editing, and producing television and radio programs.

347. Broadcast Practicum II. (2:2:2) Prerequisite: Comms. 346.
Continuation of Comms. 346, with emphasis on more complex program forms and on integration of program materials into station and closed circuit systems operations.

365. Press Photography. (2:1:3) Prerequisites: Comms. 263, Physics 177 or equivalent.
Application of photocommunications principles in designing and producing single and multiple-picture sequences for newspapers, magazines, and other publications.

366. Advertising and Illustrative Photography. (2:1:3) Prerequisite: Comms. 264.
Black-and-white and color photography, using the principles of layout and persuasive communication in the design and production of advertising for all the media.

368. Pictorial Photography. (2:1:3) Prerequisite: Comms. 263 or equivalent.
Art composition as applied to photography. Perfecting 35-mm and larger format techniques through creative projects involving landscapes, still life, and use of recorded sound.

369. Color Photography. (2:2:3) Prerequisites: Physics 177, ArtDs. 102, Comms. 263, 264.
Practicum in creative application of color in photography. Advanced techniques in color transparencies and color printing provided.

374. Motion-Picture Photography. (3:2:2) Prerequisites: Comm. 263, 272, and Theatre 317R.
Principles of 8mm and 16mm motion-picture photography; to include composition; camera, film, and lens selection; exposure; and overview of interior and exterior lighting techniques.

375. Motion-Picture Editing. (3:2:2) Prerequisites: Comms. 272 and Theatre 317R.
Selecting continuity and timing of motion-picture footage to tell a story. Introduction to sound editing. Technical procedures and 8mm and 16mm editing equipment.

420. Depth Reporting. (2:2:0) Prerequisite: Comms. 312.
Techniques of modern investigative reporting for print and electronic media. Research, writing, and analysis of major public issues.

427. Magazine Writing. (3:3:0) Home Study also. Prerequisite: Comms. 211 or consent of instructor.
Planning and writing nonfiction articles for sale to periodicals. Analysis of magazine markets and criticism of articles written in the course.

433. Retail Advertising Management. (3:3:0) Prerequisite: Comms. 334.
Organizing the advertising department. Market research and advertising campaigns.

434. Newspaper Advertising Management. (2:2:Lab. incl.) Prerequisites: Comms. 230, 331.
Principles of newspaper advertising, organizing the advertising staff, servicing of local and national accounts.

display and classified rate structures, advertising sales, promotion, and research.

435. Public Relations Research and Projects. (3:3:0) Prerequisite: Comms. 336.
Observation and understanding of the public relations process of fact finding, planning, and evaluating social interrelationships; individual projects in public relations campaigns.

439. Advertising Media and Campaigns. (3:3:0) Prerequisites: Comms. 331, 333.
Research and planning of advertising campaigns as related to national and local objectives; media selection and budgeting; individual project in production of an advertising campaign.

444. Broadcast Sales Administration. (2:2:Lab. incl.) Prerequisites: Comms. 230, 255, 333.
The course is designed to develop the student's understanding of the complex interrelationships that are involved among various departments, in order to handle professionally the sales administration of a broadcast facility.

449. Broadcast Programs and Audiences. (3:3:0) Prerequisites: Comms. 346, 347.
Observation and analysis of basic program forms used in radio and television; examination of effective program structure and appeals; consideration of audience situation and measurement.

450. Noncommercial Telecommunication Systems. (2:2:0) Prerequisite: senior standing. Mills
Examination and development of noncommercial non-mass-media telecommunications systems and their use and impact in training, in instructional systems, and in program distribution.

453. Broadcast Announcing. (2:1:2) Prerequisites: Comms. 255 and Theatre 121 (section for broadcasters).
Laboratory and broadcast practice in presentation of major types of radio and television announcing materials.

456. Television Operations and Directing. (3:3:3) Prerequisite: Comms. 346. Recommended: Theatre 460R.
Theories and techniques of television operations and directing.

480. Senior Seminar. (3:3:0) Prerequisites: Comms. 110 and senior standing.
Analysis of contemporary practices and problems of the mass media as social and business institutions; introduction to communications research.

495R. Projects in Communication Practice. (1-4:0:5-20 ea.) Prerequisites: senior standing and consent of department chairman.
Professional projects or internships for communications majors in advertising, public relations, journalism, radio, television, or photocommunications.
(Students must make application to the department chairman for assignment one semester in advance of the term during which assignment to a project is desired. Internships normally will be assigned on the block plan during the Fall or Winter semesters or during the Spring or Summer terms.)

501. History of Mass Communications. (2:2:0)
Development of the print, film, and broadcast communication media from their beginnings to the present, and their roles as institutions in American society.

510. Mass Media Administration. (2:2:0) Prerequisite: Comms. 312 or 439 or 449.
Problems of organization and administration for newspapers, magazines, radio stations, and television stations.

521. Opinion Writing. (2:2:0) Prerequisite: Comms. 312 or consent of instructor. Burnett
Opinion function of the mass media in editorials, columns, commentaries, and reviews.

528. Magazine Editing and Publishing. (2:2:0) Prerequisite: Comms. 312.
Principles of layout and design for magazines and business publications. Contemporary practices in content and production.

550. Instructional Telecommunication Production. (2:2:2) Prerequisite: consent of instructor.
Producing modules and units of predesigned instructional packages.

556. Advanced Program Development and Production. (2-4:1:3-6) Prerequisite: consent of instructor.
An advanced course in broadcasting and film production, observing professional standards.

580. Comparative World Communication Systems. (2:2:0)
Mass media systems in developing authoritarian and free nations. Relationship of these systems to government.

581. International Communication Problems. (2:2:0)
An examination of the cultural, physical, and governmental barriers to the flow of information between nations. Role of the press in foreign policy. International propaganda.

Speech Communication

The program in speech communication provides the foundation for a broad liberal education designed to prepare students for careers in public and professional life (government, industry, law, education) requiring both personal and public communication. Courses in speech communication focus on the nature, production, use, and role of messages in life and society, and on application of communication concepts and practices to interpersonal, organizational, and public situations.

Major study in this area is concentrated in one of the following main divisions:

1. Interpersonal Communication—emphasizes a behavioral approach to the study of human communication. Courses in this area stress theoretical concepts of human message systems in everyday living, with applications of these concepts to interpersonal, group, and organizational communication.

2. Rhetoric and Public Address—emphasizes the rhetorical designs and strategies used to facilitate change in social and public affairs. Courses aim to develop skill in the analysis, creation, and oral presentation of discourse as well as examine the criticism end literature of public address.

Course Requirements for a Major in Speech Communication

Majors must complete the core courses and the course requirements for one of the two main divisions of study.

Core Courses. Comms. 101, 102, 111, 130, 305, 491, and 499.

Interpersonal Communication Emphasis. Comms. 301, 310, 330, 403, 410, and at least 4 hours of electives in speech communication.

Rhetoric and Public Address Emphasis. Comms. 311, 315, 401, 403, 492, 494, and 2 hours of electives in speech communication.

Certification Requirements for Speech Communication Education

Majors. Students planning to major in speech communication education and teach on the secondary level must complete the following program: (34-hour list) Comms. 100, 102, 111, 130, 305, 311, 330, 371, 401, 492, 494 plus 7 hours of electives from 301, 310, 315, 403, 410, 491, 499 and Theatre 325.

Minors. Students planning to minor in speech communication education must complete the following: Comms. 100, 102, 111, 130, 305, 371, 401, and 492. They will also need to take Comms. 377.

BYU Forensic Organization

The speech communication area offers an opportunity for all students to participate in competitive speech activities on both the on-campus and intercollegiate levels. These activities are open to the general student body, regardless of major, and a list of specific contests can be found in the descriptions of departments of the College of Fine Arts and Communications. Students have an opportunity to participate in about thirty debate trips during the academic year.

Speech Communication Courses

100. Speech Communication. (3:3:1) (G-HA)
An introduction to theory, philosophy, and practical applications of communicative principles relevant to interpersonal, small-group, and audience settings. Recommended for prospective teachers and those desiring to improve their communicative effectiveness. Required for majors.

102. Introduction to Public Speaking. (2:2:1) (G-HA m)
An introductory course designed to improve one's public speaking skills, emphasizing verbal ability, self-confidence, message structure, and audience adaptation.

111. Argumentation and Debate. (3:2:2) Home Study also. (m) Richardson
Principles and practices in argumentation and debate.

130. Introduction to Interpersonal Communication Processes. (2:2:0) Gibb, Peterson
A survey and application of intra- and interpersonal human communication.

301. Business and Professional Communication. (2:2:0) (G-HA) Prerequisite: Comms. 100, 102, or equivalent. Frost
Analysis of communication in organizations with application in communicative methods in a variety of business and professional settings.

305. Discussion and Conference Leadership. (3:2:1) Stephan
Analyzation and utilization of human communication potentials for enlightenment, problem solving, leadership, self actualization and evaluation in small groups.

310. Processes and Behavior of Human Listening. (1:1:0) Gibb, Peterson
Theories and techniques of processing aural information with emphasis in comprehension and empathic listening.

311. Advanced Argumentation and Debate. (2:2:0) Richardson
Study and application of reasoned discourses applicable to argumentation and debate.

312, 313. Debate Techniques. (1:1:1 ea.) Richardson
Open to members of the forensics squad who obtain approval of the Communications Department and the debate council. To obtain credit in debating, students must register for this course with at least two hours of instruction per week.

315. Social Rhetoric. (2:2:0) Frost, Stephan
Settings and strategies of rhetorical influence.

330. Paradigms of Interpersonal Communications. (3:3:0) Prerequisite: Comms. 130. Peterson
Critical analysis of contemporary theories, concepts, models, and empirical research relevant to interpersonal communicative processes.

371. Forensics Programming. (2:2:1) Prerequisite: Theatre 121 or consent of instructor. Frost
Study and practice in conducting and evaluating competitive speaking events.

377. Secondary Teaching Curriculum and Methods. (3:3:1) Prerequisite: Ed. 301. Frost
Evaluation and preparation for student teaching: lectures, demonstrations, observations, pretesting, and development of methods and materials.

401. Advanced Speech Composition. (2:2:0) (m) Prerequisite: Comms. 100 or 102. Bateman, Frost
Advanced study and practice in methods of speech writing and oral presentation.

403. Persuasive Speech Communication. (2:2:0) Prerequisite: Comms. 100 or 102. Gibb
Consideration of the psychology, principles and techniques of persuasive speech communication. Practice in the application of these factors in communication.

410. Nonverbal Communication. (2:2:0) Gibb, Peterson
Body language, proxemics, kinesics, and other nonverbal codes.

479. Secondary Student Teaching. (4-8:1:20-80) Prerequisites: Comms. 377 and completion of two-thirds of courses required for teaching major and minor or composite major. Frost
For course description and fees, see Ed. 479.

491. Senior Seminar in Speech. (2:2:1) Prerequisite: junior or senior standing.
Research techniques, statistics, and computer usage applied to speech communication and rhetoric and public address. Special section for each area of emphasis.

492. Rhetoric. (3:3:0) Frost
Study and application of ancient and contemporary rhetoric as it relates to education. Required of majors seeking secondary education certification.

494. Great Speeches, Speakers, and Issues. (2:2:0) Bateman, Frost, Stephan
Analysis and evaluation of historical and contemporary public address.

499. Practicum in Speech Communication or Rhetoric and Public Address. (1:0:3)
Off-campus experience in the student's major.

590. Selected Readings and Projects. (1-2:0:0)
Independent research and study outside of usual thesis work.

600. Speech Communication as a Profession. (3:3:0) Bateman, Peterson, Stephan

601. Psychology of Speech Communication. (2:2:0) Prerequisite: Comms. 100, 401, or 403. Gibb, Peterson Stephan

614. Organizational Communication. (2:2:0) Peterson

621. Rhetorical Theory. (2:2:0) Frost

624. Contemporary and American Public Address. (3:3:0) Bateman

625. Small-Group and Dyadic Communication. (2:2:0) Gibb, Peterson

626. Argumentation and Advocacy. (2:2:0) Bateman, Richardson

691R. Internship in Speech Communication. (1-5:1-5:0) Prerequisites: Comms. 600, 611. Bateman

693. Theory of Persuasion. (2:2:0) Gibb, Peterson, Stephan

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

Computer Science

Professors: Carlson.
Associate Professors: Beus, Crandall, Dean (Chairman, 222 MSCB), Gardner, Hays, Norman.
Assistant Professors: Ashton, Burton, Call, Stokes, Wright.
Instructors: Robison, Roskelley.

The Computer Science Department offers programs of study leading to the Bachelor of Science and the Master of Science degrees. The objective of these programs is to train computer professionals qualified to contribute successfully in any of the areas of computer science.

A computer professional is prepared to deal with problems in the design and implementation of modern computer and information systems. This implies a broad knowledge of the techniques available in the field and the skills to apply these in individual situations. The computer science program provides training in these skills through a graded series of courses ranging from basic computer concepts to advanced developments in compilers, assemblers, machine organization, operating systems, and other areas.

Students contemplating a major in this area are advised to take Comput. Sci. 130, unless they have had previous computer programming experience.

For those who wish to minor in computer science, there are several alternatives available, depending on the student's major field. In addition, service courses are offered to meet the needs of students from other departments.

Students contemplating eventual graduate work in computer science are encouraged to obtain a strong mathematical background, including Math. 371 and 372.

Graduate Degree

The department offers the Master of Computer Science degree with emphases in several broad areas. For further details, see the **Graduate School Catalog.**

Requirements for a Major

A bachelor's degree candidate majoring in computer science is required to complete the following core courses with a grade of C or better:

Comput. Sci. 132, 220, 232, 330, 351, 380, 391R (twice), 420, 431, 505.
*Math. 112, 113, 210.
*Stat. 321.
*General Education—Comms. 102; Engl. 316.

In addition, five courses must be selected from the elective courses listed below. At least two of these must be computer science and one a mathematics elective.

Comput. Sci. 224, 231, 432, 436, 440, 451, or any 500-level computer science course.
Psych. 570.
Math. 211, 371, 372, 385, 411, 508, 512.
Other—Comput. Sci. 233; Stat. 241, 433, 434.

*These courses can be used to fulfill part of the general education requirements.

Sample Course Sequence for Majors

First Year	F	W	Sp/Su
Math. 112, 113	4	4	
Comput. Sci. 132†, 232, 220	3	4	3
*Religion	2	2	
*Physical education	½	½	½
*General education	7	6	5
	16½	16½	8½

Second Year	F	W	Sp/Su
Math. 210	3		
Comput. Sci. 351, 380, 330	3	3	3
Comput. Sci. 420		3	
*Stat. 321	3		
*Physical education	½		
*Religion	2	2	2
Major elective		3	
*General education	6	6½	
Engl. 316			3
	17½	17½	8

Third Year	F	W	Sp/Su
Comput. Sci. 431	3		
Comput. Sci. 505		2	
Comput. Sci. 391R	½	½	
*Religion	2	2	
Major elective	6		
Mathematics electives		3	
Other electives	6	10	8½
	17½	17½	8½

*General education requirements.
†If the student has had no previous computer programming, it is recommended that he take Comput. Sci. 130 first or concurrently.

Courses

105. Computers and Their Use. (2:2:0)
General introduction to computers—how they work and their use in the modern world.

130. Computers and Programming. (2:2:1) Home Study also. (G-ML m) Prerequisite: Math. 101 or equivalent.
Computer programming for beginners.

131. Scientific Computing. (3:3:2) (G-ML) Prerequisite: Math. 101 or equivalent.
Computer organization and programming for engineering and science students.

132. Computer Organization and Programming I. (3:3:2) (G-ML m) Prerequisite: concurrent registration in Math. 111.
Computer organization and programming principles for computer science majors.

133A,B. Business Computing I, II. (1½:3:2 ea.) (G-ML) Prerequisite: Math. 108.
Computer organization and programming with emphasis on business applications. Taught in an eight-week term or block.

☐**Mathematics 210. Introduction to Mathematical Logic.** (3:3:0)

220. (Comput. Sci.—Elec. Eng.) Digital Computer Electronics. (3:2:3) Prerequisites: Physics 122 or Comput. Sci. 132 or Elec. Eng. 120.
Basic elements and technologies used to fabricate digital computers; laboratory experience in constructing simple computer subsystems.

224. (Computer Sci.—Elec. Eng.) Digital Computer Sequential Circuits Design. (3:2:3) Prerequisite: Comput. Sci. 220.
Asynchronous and synchronous sequential circuit analysis and synthesis, including flip-flop excitation functions, state assignments, and race conditions.

231. Programming Techniques Using FORTRAN. (3:3:2) Prerequisite: Comput. Sci. 131 or equivalent.
Data handling, file handling, and mathematical applications using FORTRAN.

232. Computer Organization and Programming II. (3:3:2) Prerequisite: Comput. Sci. 132.
Continuation of Comput. Sci. 132.

233. Programming Commercial Applications in COBOL. (3:3:2) Prerequisite: Comput. Sci. 133 or 330.
Computer applications in business using the COBOL programming language; data management, sorting, and file maintenance.

300. Programming Systems Survey. (3:3:0) (m) Prerequisites: Comput. Sci. 131, 132, or 133.
Overview of programming techniques, data structures, languages, and operating systems.

330. Programming Languages. (3:3:0) (m) Prerequisite: Comput Sci. 232 or equivalent.
Principles and concepts which characterize various classes of high-level computer-programming languages.

351. Information Structure. (3:3:1) Prerequisite: Comput. Sci. 232.
Computer representation of information—its structure and logical organization for optimum computer processing.

380. Computer Architecture. (3:3:0) (m) Prerequisites: Comput. Sci. 220 and 232.
A survey of computer architectures, including memory and addressing, arithmetic schemes, data channels, order codes, microprogramming, and multiprocessors.

391R. Seminar in Computer Science Topics. (½:2:0 ea.) Prerequisite: Comput. Sci. 330 or 351.
A participation-type seminar with final examination. Reports taken from current developments in the computer field.

☐**Mathematics 411. Numerical Methods.** (3:3:0)

420. Operating Systems Principles. (3:3:0) Prerequisites: Comput. Sci. 330 and 380.
Principles underlying the design and implementation of computer operating systems.

431. Algorithmic Languages and Compilers. (3:3:0) Prerequisites: Comput. Sci. 330 and 351.
Formal description of algorithmic languages, e.g., FORTRAN, and the techniques used in their compilation. Study of syntax, semantics, ambiguities, procedures, replication, iteration and recursion.

432. Assemblers. (3:3:1) Prerequisite: Comput. Sci. 351.
Implementation and use of advanced assembly language features.

436. List and String Processing. (3:3:1) Prerequisite: Comput. Sci. 351.
List and string processing techniques, languages (SNOBOL, LISP, etc.), and applications (computational linguistics, formula manipulation, text processing, artificial intelligence).

440. Operating Systems Design. (3:3:0) Prerequisite: Comput. Sci. 420.
Pragmatic aspects of computer operating—systems design and implementation.

451. Information Systems Analysis. (3:3:2) Prerequisite: Comput. Sci. 233 or 330. Recommended: Comput. Sci. 351.
Techniques for the analysis of information processing systems from the viewpoint of computer implementation.

501R. Advanced Topics in Computer Science. (3:3:1 ea.) (m) Prerequisite: consent of instructor.
Recent developments in computer science.

505. Computers and Society. (2:2:0) Prerequisites: none.
Discussion, reading and written composition dealing with the beneficial and adverse impacts upon society of current and future uses of computers.

510. Formal Languages and Syntactic Analysis. (3:3:0) (m) Prerequisite: Comput. Sci. 431 or consent of instructor.
Definition of formal grammars and algorithms for syntactic analysis.

☐**Mathematics 512. Introduction to Numerical Analysis.** (3:3:0)

531. Compiler Theory and Design. (3:3:1) Prerequisites: Comput. Sci. 431 and 432.
Study and creation in theory and design of compilers and interpreters, including syntax-directed compilers and metacompilers.

551. Data-Based Computer Systems. (3:3:0) (m) Prerequisite: Comput. Sci. 351.
Study of data bases and data-base management, including: design and evaluation, retrieval languages and systems, information-structuring techniques, and data integrity.

552. Computer Center Management and Performance Measurement. (3:3:2) (m) Prerequisite: senior or graduate standing in computer science.
Measurement of computer systems using hard and software monitors. Use of monitor information in systems improvement and future design. Implications for computer center management.

555. Computer Graphics. (3:2:1) (m) Prerequisite: Comput. Sci. 431.
Study of computer-graphics techniques developed in recent years, including interactive graphics, graphics system design, two- and three-dimensional picture drawing and display processors.

561. Theoretical Foundations of Computer Science. (3:3:1) (m) Prerequisite: Math. 210 or equivalent.
Study of formal languages, automata theory, sequential machines, computability and undecidability, and graph theory.

☐**Psychology 570. Computer Use in the Behavioral Sciences.** (3:3:6)

571. Discrete Systems Simulation. (3:3:1) Prerequisites: Psych. 570 or Comput. Sci. 231 or 330, Stat. 221.
Computer simulation utilizing logical, numerical, and Monte Carlo models. Collection and evaluation of statistics on passage times, flow volume, queue lengths, manpower, and equipment utilization.

572. Artificial Intelligence and Heuristic Programming. (3:3:0) (m) Prerequisites: Comput. Sci. 330 or 231, Stat. 221 or 321.
Heuristic vs. algorithmic methods; description of cognitive processes; approaches to mathematical invention. Survey of research in theorem proving, game playing, simulation of cognitive processes, etc.

581. Advanced Computer Architecture. (3:3:3) (m) Prerequisite: Comput. Sci. 380. Recommended: Comput. Sci. 224.
Lecture, discussion, and projects leading to the ability to synthesize innovative and relevant machine organizations.

598R. Special Projects. (1-3:1:0) (m) Prerequisites: Comput. Sci. 351 and consent of instructor.

699. Thesis.

Economics

Professors: Clark (Chairman, 302 JKB), Davies, Doxey, Nelson.
Associate Professors: Case, Dutton, McDonald, Rickenbach, Wimmer.
Assistant Professors: Crawford, Israelsen, Koller, Nanto, Parsons, Pope, Pritchett.

Undergraduate training in economics provides excellent preparation for entrance into many graduate programs or professional careers. A minimum of designated courses is required, allowing the student considerable flexibility in developing a curriculum consistent with his or her professional goals.

The following areas are most popular among students graduating with a major in economics:

1. The study of law
2. Graduate study in business—MBA, DBA, or Ph.D. in business or M.A. in organizational behavior
3. Graduate study in economics—either M.S. or Ph.D.
4. Graduate study in allied fields—Asian studies, Latin American studies, urban studies, public administration, etc.

5. Employment in business or labor relations
6. Career in government service
7. Teaching economics in secondary schools

General Information for Majors

The Bachelor of Arts degree in economics is offered in both the College of Business and the College of Social Sciences. Specific requirements in each college are outlined below.

The department allows a maximum of 3 hours of D credit in courses used to fulfill the major requirements.

It is recommended that students take Econ. 310, 311, and 387 or 388 as early as possible in their programs. Econ. 510, 511, and 588 are strongly recommended for those contemplating graduate work in economics. Econ. 389 is strongly recommended for those contemplating graduate work in either economics or business.

Requirements for a Major in the College of Business

Students majoring in the College of Business must take at least 27 semester hours in economics. The following courses are required: Econ. 110, 310, 311, 315 or 515, 387 or 388, and 594, plus 10 elective hours above 311. At least 8 of the total hours in economics must be at the 500 level.

Students majoring in economics in the College of Business should register in the Division of Business Fundamentals until they have completed the prerequisites for Econ. 310. They should take the following departmental AACSB core courses as soon as possible: Econ. 110, Math. 112 or 141, Acctg. 201 and 202, Comput. Science 133-A or a quickie course in Fortran, and Stat. 221 (for 4 hours) or 321 or 520. (Stat. 321 or 520 is recommended). Students who receive a B or better in Econ 110 should go directly to Econ. 310 or 311; otherwise, they should take Econ. 212.

Students majoring in the College of Business are required to take one course from each of the following areas A through C to complete the departmental AACSB core requirement other than in the Department of Economics:

Area A	Area B	Area C
*Econ. 353	Bus. Mgt. 341	Org. Behav. 321
*Econ. 553	Bus. Mgt. 361	Bus. Mgt. 499
Bus. Mgt. 301		Bus. Ed. 305

*If Econ. 353 or 553 is used to satisfy the core requirement, it cannot be counted in the 10 elective hours above 311.

We recommend that students consider taking the following courses: Engl. 315 or Bus. Ed. 320, Phil. 205 or 305 and 355.

Requirements for a Major in the College of Social Sciences

Students majoring in the College of Social Sciences must take at least 30 semester hours in economics. The following courses are required: Econ. 110, 310, 311, 315 or 515, 387 or 388, and 594, plus 13 elective hours above Econ. 311. At least 8 of the total hours in economics must be at the 500 level.

Students majoring in economics in the College of Social Sciences should take the following courses as soon as possible: Econ. 110, Math. 112 or 141, Stat. 221 (for 4 hours) or 321 or 520 (Stat. 321 or 520 is recommended). Students who receive a B or better in Econ. 110 should go directly to Econ. 310 or 311; otherwise, they should take Econ. 212.

We recommend that students consider taking the following courses: Acctg. 201, Comput. Sci. 133-A or a quickie course in Fortran, Engl. 315, Phil. 205 or 305 and 355.

While a minor is not required, students may select minors in the following areas: Asian studies, geography, history, international relations, political science, psychology, sociology, anthropology, mathematics and statistics. Any other minor requires the Economics Department chairman's approval.

Requirements for an Economics Minor

Students selecting economics as a minor subject must take Econ. 110, 300 or 310, 301 or 311, and 6 additional hours in economics above 311.

Courses

110. Economy, Society, and Public Policy. (3:3:0) Home Study also. (G-SS m)

Introduces the student to the strengths and weaknesses of a market system and the role of government in solving basic social and economic problems. Among the policies to be discussed are those related to unemployment, poverty, inflation, economic growth, and the environment.

212. Economics of the Market System. (3:3:0) Home Study also. (G-SS m) Prerequisites: Completion of or concurrent registration in Econ. 110 and Math. 110 or equivalent.

A study of price determination and income distribution by examining the behavior of the household, business, and government sectors of the economy.

300. Microeconomics for Business Decisions. (3:3:0) (G-SS m) Prerequisites: Econ. 110 or equivalent (with a C or better) or Econ. 110 and 212, and Acct. 232-A or equivalent.

A presentation of microeconomic principles in the context of their relevance to business decisions.

301. Macroeconomics for Business Decisions. (3:3:0) (G-SS m) Prerequisite: Completion of or concurrent registration in Econ. 300.

A presentation of macroeconomic principles analyzing the economic environment within which business operates and forecasting changes in aggregate economic relationships.

310. Theory of Price. (3:3:0) (G-SS m) Prerequisites: Econ. 110 or equivalent (with a B or better) or Econ. 110 and Econ. 212; completion of or concurrent registration in Math. 112 or 141. Primarily for economics majors or minors.

Intermediate economic theory, with emphasis on price and distribution analysis.

311. Theory of Income, Employment, and the Price Level. (3:3:0) (G-SS m) Prerequisites: Econ. 110 or equivalent (with a B or better) or Econ. 110 and 212 and completion of or concurrent registration in Math. 110 or equivalent. Primarily for economics majors or minors.

Intermediate economic theory, with emphasis on national income analysis.

315. History of Economic Thought. (3:3:0) (G-SS m) Prerequisite: Econ. 110 or equivalent. Clark, Davies

An analysis of the development of economic thought.

330. Economic Development. (3:3:0) (G-SS m) Prerequisite: Econ. 110 or equivalent. Koller, Nanto

Theoretical and empirical analysis of the problems and processes of economic development, with emphasis on the less-developed nations.

335R. Economic Problems of Selected Areas. (3:3:0) (G-SS m) Prerequisite: Econ. 110 or equivalent.

The following areas will be considered: economics of the Soviet Union and eastern Europe, Asia, Latin America, and Western Europe.

341. Comparative Economic Systems. (3:3:0) (G-SS m) Prerequisite: Econ. 110 or equivalent. Israelsen, Koller, Nelson

Through the use of economic models and the application of economic principles, analyses are made of capitalism, market socialism, and central planning systems.

352. Real Estate and Urban Analysis. (3:3:0) (G-SS m) Prerequisite: Econ. 110 or equivalent. Nelson, Rickenbach

An introduction to the principles and problems associated with real estate decision as they relate to valuation, financing, marketing, and economic trends.

353. Money and Banking. (3:3:0) (G-SS m) Prerequisite: Econ. 110 or equivalent. Parsons

Principles of money and banking as related to monetary and banking theory and policy.

☐Agricultural Economics 355. Rural Development Economics. (3:3:0) (G-SS)

358. International Trade and Finance. (3:3:0) (G-SS m) Prerequisite: Econ. 110 or equivalent. Doxey, Nanto

An introduction to the theory and institutions of international trade and finance, with special emphasis on applications to the United States.

361. Labor Economics. (3:3:0) (G-SS m) Prerequisite: Econ. 110 or equivalent. Davies

A study of the economic principles, problems, and institutions involving labor unions and collective bargaining.

362. Manpower Economics. (3:3:0) (G-SS m) Prerequisite: Econ. 110 or equivalent. Davies

A study of the barriers to optimal utilization of manpower and the programs to remove such barriers.

374. Economic History of the United States. (3:3:0) (G-SS m) Prerequisite: Econ. 110 or equivalent. Wimmer, Pope

A review of American economic growth with special emphasis on such topics as slavery, transportation, monopolies, the role of government, and the Civil War.

375. Public Choice in a Market Economy. (3:3:0) (G-SS m) Prerequisite: Econ. 110 or equivalent. Case, Parsons, Rickenbach, Wimmer

Economic evaluation of political options in such areas as military spending, welfare, taxation, and the environment.

387. Quantitative Methods in Economics. (3:3:0) (G-SS m) Prerequisites: Math. 112 or 141, Stat. 321 or equivalent, and Econ. 310 or 300 and completion of or concurrent registration in Econ. 311 or 301. Koller, McDonald, Pritchett

An introduction to quantitative methods by which economic theory may be empirically tested and put to practical use in forming policy and evaluating economic alternatives.

388. Introduction to Econometrics. (3:3:0) (G-SS m) Prerequisites: Math. 112 or 141, Stat. 321 or equivalent, and Econ. 310 or 300 and completion of or concurrent registration in Econ. 311 or 301. McDonald

An analysis of the mathematical and statistical techniques employed in the estimation and testing of hypotheses associated with quantifiable economic relationships.

389. Mathematical Economics. (3:3:0) (G-SS m) Prerequisites: Econ. 310 and completion of or concurrent registration in Econ. 311. McDonald

A study of linear algebra and calculus with applications of these tools in the analysis of production, consumer choice, market equilibrium, and national income models.

☐Agricultural Economics-Economics 390. Natural Resource Economics. (3:3:0) (G-SS) Infanger

Economic principles underlying utilization and conservation of natural resources.

501R. Current Economic Policies and Problems. (2-3:Arr.:Arr. ea.)

510. Advanced Price Theory. (3:3:0) (G-SS m) Prerequisites: Econ. 310 or 300 and completion of or concurrent registration in either Econ. 389 or Math. 142 or 214. Crawford, McDonald, Wimmer, Pope

511. Advanced Theory of Income, Employment, and the Price Level. (3:3:0) Prerequisites: Econ. 310 or 300, 311 or 301, and completion of or concurrent registration in Econ. 389 or Math. 142 or 214. Crawford, Dutton, Israelsen, McDonald, Nanto, Wimmer

513R. Topics in Advanced Economic Theory. (2-5:Arr.:Arr. ea.) Prerequisites: Econ. 510 and 311 or 301. Israelsen, Nanto

515. Advanced History of Economic Thought. (3:3:0) Prerequisites: Econ. 310 or 300 and 311 or 301. Clark, Wimmer

530. Advanced Economic Development. (3:3:0) Prerequisites: Econ. 310 or 300 and 311 or 301. Koller, Nanto

535R. Economic Problems of Selected Areas. (3-6:Arr.:Arr. ea.) Prerequisites: Econ. 310 or 300 and 311 or 301.

The following areas will be considered: economics of the Soviet Union and Eastern Europe, Asia, Latin America, and Western Europe.

541. Advanced Comparative Economics Systems. (3:3:0) Prerequisites: Econ. 310 or 300 and 311 or 301. Israelsen

552. Urban Economics, Theory Problems, and Policies. (3:3:0) Prerequisite: Econ. 110 or equivalent. Case, Nelson, Rickenbach

553. Theory of Money and Banking. (3:3:0) Prerequisites: Econ. 310 or 300 and 311 or 301. Dutton, Parsons

558. Theory of International Trade and Finance. (3:3:0) Prerequisites: Econ. 310 or 300 and 311 or 301. Doxey, Israelsen

563. Economics of the Labor Market. (3:3:0) Prerequisites: Econ. 310 or 300 and 311 or 301. Crawford, Davies

574. American Economic Development. (3:3:0) Prerequisites: Econ. 310 or 300 and 311 or 301. Pritchett, Wimmer, Pope

575. Theory of Public Finance. (3:3:0) Prerequisites: Econ. 310 or 300 and 311 or 301. Parsons, Pritchett, Rickenbach

576. Industrial Organization and Public Policy. (3:3:0) Prerequisite: Econ. 310 or 300. Koller

588. Econometrics. (3:3:0) Prerequisites: Econ. 310 or 300, 311 or 301, 388 and 389 or Math. 142 or 214. McDonald

589R. Advanced Mathematical Economics. (3-6:Arr.:Arr. ea.) Prerequisites: Econ. 310 or 300, 311 or 301, and Econ. 389 or Math. 142 or 214 or consent of instructor. Pritchett, McDonald

594R. Seminars in Selected Economic Topics. (2-6:0:0) (G-SS) Prerequisite: completion of a 300- or 500-level course in the same subject area as the seminar.

Seminars will be held in the following areas: economic theory, economic history and thought, economic development and comparative systems, monetary and banking theory and policy, urban studies, international economics, labor economics, public finance, industrial organization, mathematical economics, and quantitive methods.

595R. Lectures in Economics. (1-3:Arr.:Arr. ea.) Prerequisite: Econ. 110 or equivalent or consent of instructor.

596R. Readings in Economics. (1-3:Arr.:Arr. ea.) (G-SS)

597R. Research in Economics. (1-3:Arr.:Arr. ea.)

664. Advanced Collective Bargaining. (2-3:2:0) Prerequisite: consent of instructor. Davies

688. Applied Econometrics. (3:3:0) Prerequisites: Econ. 310 or 300 and 311 or 301 or Bus. Mgt. 610 and 620 and consent of instructor. Crawford, McDonald

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

Education

The following departments are included in the College of Education:

Elementary Education
Secondary Education and Foundations
Educational Administration
Educational Psychology

The undergraduate program in education is organized to develop effective and capable teachers. Courses sponsored by the College of Education are designed to help students understand children, organize materials, and acquire the knowledge, skills, and attitudes necessary for effective teaching. The department trains in three areas: special education, elementary education, and secondary education.

To be eligible for teacher education sequence courses, a student must have either a BYU cumulative grade-point average, with no fewer than 32 semester hours completed, or 2.25 or higher or a total college cumulative grade-point average of 2.25 or higher. Elementary education requires a minimum grade-point average of 2.5 with no fewer than 15 semester hours completed. He must also satisfy a grammar and spelling requirement by passing a test which is administered by the Testing Service, or he may qualify by verifying a score of 20 or higher on the English section of the American College Test. In addition to the above, special education majors must make a separate application for admission to the Institute for Special Education.

Students are required to obtain a Certificate of Admissions card by clearing through the Teacher Clearance Office when the above prerequisites are met. This must be done prior to registration. TCO clearance is also required for certain other professional sequence courses as noted in the catalog.

The College of Education is organized to offer courses for all persons engaged in professional education and service courses to graduate students in other disciplines.

Programs are designed to give special training to school administrators, school business managers, supervisors, curriculum directors, educational psychologists, specialists in counseling and guidance, reading specialists, communication/learning disability specialists, and teachers, administrators, and supervisors of special education. Such programs are at once intensive and broad in scope. They are designed to give the depth and breadth needed by specialists in education.

Graduate Degrees

The college offers graduate degrees at both the master's and doctoral levels. The Master of Arts, the Master of Education, and the Educational Specialist degrees are offered. In addition, both the Doctor of Education and the Doctor of Philosophy may be obtained through this college.

(For details of these programs, see the **Graduate School Catalog.**)

Department of Elementary Education

Professors: R. Allred, Berryessa, C. Clark, Daines, Harmon, Laird, Sucher (Chairman, 205 McKay).
Associate Professors: Bishop, Cutler, Butterfield, Dunn, Harms, Heil, Moore, Ord, Puckett, Winterrose, Young.
Assistant Professors: Anderson, Campbell, Chai, Nelson, Searle, Wade.
Clinical Instructors. Bowles, Carlisle, Clark, Hardy, Jacob, Knight, Koplin, Peterson.

The Department of Elementary Education offers a comprehensive program in the professional preparation of elementary teachers which satisfies requirements for the standard elementary teaching certificate and the early childhood education endorsement, as well as graduation requirements for students registered in the College of Education.

The program consists of three elements:

1. University requirements for general education
2. The academic-support area for elementary school teachers
3. The professional preparation, which includes 34 semester hours of designated professional education courses constituting a major in elementary education

1. **General Education Requirements**
   a. Biological science (6 hours): Zool. 351, 352.
   b. English composition (6 hours): Engl. 111 and 212.
   c. History and government (3 hours): Hist. 170.
   d. Humanities (6 hours): Comms. 100 or Theatre 121, and Hum. 101; or other courses meeting humanities requirement.
   e. Math.-Science or foreign language preference (6-12 hours):
      (1) Math. 305 and 3 additional hours from other courses meeting this requirement or
      (2) Foreign language courses (4-12 hours): Completion of a 201 language course meets this requirement.
   f. Physical education and health (4 hours): Health 361; P.E. 103, 184, and two courses chosen from two of the following categories:
      (1) Individual games: P.E. 104, 126, 133, 134, 160, 161, 173.
      (2) Group games: P.E. 140, 144, 147, 152.
      (3) Physical fitness: P.E. 175R, 176, 178.
   g. Physical science (6 hours): Geol. 101, 102; Physics 100.
   h. Religion: 2 semester hours in religion for each full-time registration (maximum: 14 hours).
   i. Social science (5-6 hours): Geog. 120 and at least 2 additional hours selected from the following electives: Anthrop. 105; Econ. 110; Hist. 461, 465, 466; Pol. Sci. 105, 110; Psych. 111, 350; Sociol. 111, 112, 526; Youth Ldr. 378, 381.

2. **Academic-Support Area** (27 hours)
   a. Humanities and aesthetics (9 hours): ArtDs. 326; Music 345; Ed. 340.
   b. Math. (3 hours): Math. 305.
   c. Physical education and health (5 hours): P.E. 375 or 376 and Health 361.
   d. Specialization area (minimum 10 hrs). Elementary majors are required to have a minimum of 10 hours in an approved area of specialization. This area is to be chosen from the following list:

      Art: ArtDs. 102, 103, 104, 105, 106, 107, 311, 312.
      CDFR: 210, 305, 310, 312, 322, 362, 410.
      Humanities: At least one course must be selected from each of the following areas: ArtDs. 101, 102, 103, 312; Hum. 101, 201, 202; Music 101, 103.
      Indian Education: Sociol. 223; Ling. 325; Anthrop. 317; Hist. 457, 462, 463, 469; Univ. St. 107.
      Language arts: Ed. 242; Theatre 360, 527, 572R; Engl. 325, 326, 422 (required).
      Mathematics: Math. 306 and 7 hours from the following: Math. 110R, 210, 300, 301, 302, 371, 372, 385, 387, 451, 495R.
      Modern language: French—201, 301, 311, 326, 445; Ed. 330. German—201, 301, 311, 326, 401; Ed. 330. Spanish—201, 301, 311, 326, 445, 455 (Ed. 330). (See department for proficiency waiver.)
      Music: Music 195, 200R, and 421 are required (Music 195 and 200R are to be taken concurrently). Choose the remaining credit (4 hours) from and ensemble classes or applied music study in piano and voice classes.
      Outdoor Education: Bot. 205, 400; Youth Ldr. 370, 378, 380, 381, 382, 480.
      Physical Education: Core: P.E. 341, 344.
         Men: 4 hours from the following: P.E. 231, 232, 233, 234, 236, 237, 372, 373.

Women: P.E. 173, 187; 3 hours from the following: 233, 236, 241, 242, 244, 245, 246, 247, 248, 249.

Reading: 450R. Required: Ind. Reading through Diagnosis and Prescription, Recreational Reading, Reading in the Content Areas; Ed. 527. Select one from Ed. 547 and Engl. 422.

Science (choose from at least three fields): Chem. 100; Geol. 104; Physics 127, 137; Bot. 205, 400; Zool. 260, 261.

Social Science: To be selected from the following in at least three fields: Anthrop. 105; Econ. 110; Geog. 211, 231, 501; Hist. 110, 111, 120, 121, 462, 463, 465, 466, 469; Pol Sci. 105R, 110; Psych. 111, 350; Sociol. 111, 112, 340, 526.

Special Education: Ed. 260 required; at least two courses from Ed. 361, 362, 381, 431, 465, 470.

TESL (Teaching English as a Second Language): Engl. 321 or 422; Ling. 325 (sec. 2); ESL 477. Recommended: ESL 528. ESL 477 and 528 offered once a year.

3. **Major in Elementary Education** (34 hours)

	Hours
Ed. 200 (Phase I) Educational Exploration	2
Ed. 300 (Phase II) Teacher Assistant Experience	8
Ed. 350 (Phase III) Methods and Strategies of Teaching	8
Ed. 400 (Phase IV) Classroom Teaching Experience	8
Ed. 450R. (Phase V) Analysis of Teaching Seminar	8

Program Guides. Copies of the Elementary Program Guide which describes the elementary education major program in detail, are available in the Advisement Center for the College of Education at the Teacher Clearance Office (TCO), 131 MCKB.

Department of Secondary Education and Foundations

Professors: Alley, Baird, Belt, Holder, Wilcox, Wolfgramm.
Associate Professors: W. Allred (Chairman, 111 MCKB), Muse, Shute, Thomson.
Assistant Professors: Coombs, Grossen, Webb.
Intructors: Arnoldsen, Henderson.

Note: The department is currently in the process of developing a new program which will be initiated as feasible. In the meantime, students currently pursuing certification for teaching on the secondary level (junior high school or senior high school) must complete requirements as follows:

1. **General Education.** See the General Education Requirements section of this catalog.
2. **An Approved Teaching Major and Minor, or Composite Teaching Major** (see following pages). Although a minor is no longer required for graduation from the University, recommendation for certification requires the successful completion of an approved teaching major **and** minor.
3. **Professional Education.** The following courses fulfill the state requirements for professional education. The first three are sequence courses, and students should plan their program far enough in advance to allow for their proper inclusion. Teacher Clearance Office (TCO) approval should be obtained prior to registration in the sequence courses listed below:

	Hours
Ed. 301 Basic Concepts and Principles of Teaching	2
Ed. 377* Secondary Teaching Curriculum and Methods	3
Ed. 479* Secondary Student Teaching	8

***Note:** Students whose major departments offer courses equivalent to Ed. 377 and 479, bearing those numbers, must register in the appropriate department.

Nonsequential Courses:	**Hours**
Ed. 403R Development and Learning	4
Ed. 410** The State, the School, and the Teacher	2
Ed. 415** Educational Values	2
Health 362** School Health for Secondary Teachers	2
Recommended but not required:	
Ed. 406 Educational Media, Production, and Utilization	2

****Note:** Block-Plan Classes: To provide an opportunity for students to carry a full class load during the semester in which student teaching is done, these nonsequential courses are taught on the block plan. (Student teaching is normally all day for one-half semester.) Students taking one or more of these courses at another time, or transferring equivalent credit from other institutions, will find it difficult, if not impossible, to arrange a full class load during the student-teaching semester.

Prerequisites for Student Teaching

1. A total college cumulative grade-point average of 2.25 or higher is required, or a BYU cumulative grade-point average (with not fewer than 32 semester hours completed) of 2.25 or higher.
2. Completion of Ed. 301 and 377 (or departmental equivalent). Some departments require Ed. 377 in the minor as well as the major.
3. Completion of at least 15* semester hours in the teaching major and 10* semester hours in the teaching minor, or 25* semester hours in the composite teaching major.
4. Application for certification in the Teacher Clearance Office (TCO).
5. A clearance check by the academic department.

***Note:** Some academic departments require completion of more than the listed minimum prior to clearance for student teaching.

Certification Procedures

Students must not assume that certification is automatic once item 4 above has been completed. Students have the responsibility to keep the TCO informed regarding progress toward certification. Any deviation from the certification program outlined in this catalog must be approved by both the academic department chairman and the chairman of the Department of Secondary Education and Foundations in the College of Education. It is the student's responsibility to arrange for the preparation and circulation of the necessary memoranda initiating such action.

In order to avoid any undue delays concerning certification, each student should arrange for a personal review of his TCO file well in advance of registration for his final semester. Completion of **graduation** requirements does not necessarily mean that **certification** requirements have been met.

Certification for Graduate Students

Students who have received a degree in an academic area, and who wish to obtain a secondary teaching certificate, should contact the Teacher Clearance Office for specific information.

Special Programs in Secondary Education (Being Phased Out)

Individualized Secondary Teacher Education Program (I-STEP)

This program is designed to integrate the theory and practice of learning and teaching. Students achieve the objectives of the program at their own rate; some complete the required work and meet the objectives in one semester, while others require at least two semesters. Included as part of the experience is the student teaching opportunity in the public schools. Most of the other professional education requirements may be satisfied in the program. Additional information and application forms may be obtained at the Teacher Clearance Office (TCO).

Preparation of Teachers of Indians—Secondary

Students seeking secondary certification are required to have an approved academic teaching major and minor. There is, however, no approved major or minor in the secondary Indian teaching emphasis. All related experiences must be planned as a part of the general education or elective portion of the student's program.

The following courses are recommended:

Anthropology
  105 (3) Introduction to Social Anthropology
  320 (2) The North American Indian Today
  430 (3) Moral and Ritual Institutions
English
  225 (2) Vocabulary Building
History
  469 (2) The Indian in American History

Student teaching in public classrooms which have a significant proportion of Indian students is desirable and feasible. Inquiry should be made early with the major department and the supervisor of secondary Indian teacher education of the College of Education so that arrangements can be made to provide that experience.

Preparation of Seminary and Institute Teachers

Students who are interested in qualifying for teaching seminary and institute should meet the following requirements:

1. Recommended secondary certification for teaching in the student's choice of fields.
2. Completion of the following courses:
   Religion
     370 (2) Introduction to Religious Education
     471 (2) Teaching the Scriptures
3. Student teaching in seminary one hour per day for a specified number of weeks. (Note: This does not count toward the student teaching requirements for state certification.)
4. Recommended completion of the following courses:
   Religion
     121,122 (2 ea.) Introduction to the Book of Mormon
     211 (2) The New Testament
     301 (2) The Old Testament
     341 (2) Latter-day Saint Church History to 1846

Interested students should contact the Office of Seminaries and Institutes for specific information.

Teaching Majors and Minors

The teaching major and the teaching minor consist of designated courses in subjects taught in Utah secondary schools. The majors and minors are determined cooperatively by the different academic departments and the Department of Secondary Education in the College of Education. Programs have been approved in the following areas as teaching majors and/or minors (please note exceptions):

Secondary School Subjects Acceptable as Teaching Majors

Art
Chemistry
Economics†
English
English as a Second Language
French
Geography†
Geology†
German
Health
History
Journalism*
Latin*
Mathematics
Physical Education
Physics
Political Science
Psychology†
Russian*
Sociology†
Spanish
Speech
Theatre Arts

Subjects and Service Areas Acceptable as Teaching Minors

Any of the subjects listed above as majors, and
  Computer Science and Statistics (with Mathematics major only)
  Dance
  Driver and Safety Education
  Instructional Media
  Recreation Education

Note: (1) Subjects marked with an asterisk (*) are not commonly taught in Utah public schools. If a subject so marked is presented as a teaching major or a teaching minor, a subject not marked with an asterisk **must** be used to support it.
(2) Two subjects marked with the symbol † are not to be used in a major-minor combination. (Job opportunities are essentially nil with such related areas.)

Areas Acceptable as Composite Teaching Majors

A composite teaching major consists primarily of work in three subjects in the same general field. One subject is designated as the dominant subject and the other two are designated as related subjects. For guidance in selecting and completing a composite teaching major, students must consult with the Teacher Clearance Office (TCO), whose responsibility it is, under cooperative advisement with the academic departments, to administer composite majors.

The following general fields may be used for composite teaching majors:

Art
Biology
Business Education
  Distributive Education
  Secretarial—Office Administration
  Socio-Business
Earth Science
Health and Physical Education
  Dominant: Physical Education, Health Education, and one related field
  Related: Dance, Driver and Safety Education, Recreation Education
Home Economics
Humanities
Industrial Arts
Language Arts
  English
  Journalism
  Speech
  Theatre and Cinematic Arts
Music
Physical Science
  Chemistry
  Geology
  Mathematics
  Physics
Social Sciences
  Dominant: Geography, History, and one related field
  Related: Economics, Political Science, Psychology, Sociology

Courses Required for Teaching Majors, Teaching Minors, and Composite Teaching Majors

Art
  Composite Teaching Major (60-hour list)
    Fundamentals (10 hours)
      ArtDs. 116, 117.
    Graphic Core (8 hours)
      ArtDs. 241, 327R, 333R, 350R; Physics 177
    Plastic Core (6 hours)
      ArtDs. 236, 356R, 359R, 361R
    Art History (6 hours)
      ArtDs. 311, 312

Advanced Design (2 hours)
ArtDs. 320R, 420R

Dominant and Supporting Fields

Each student will complete 14 semester hours in one of the three following groups as a dominant field of study and 7 semester hours in each of the other two groups as supporting fields:

A.	Drawing	ArtDs. 321R, 322R, 421R, 422R
	Painting:	ArtDs. 427R, 428R, 518
	Printmaking:	ArtDs. 351, 450R
B.	Sculpture:	ArtDs. 456R, 458R
	Ceramics:	ArtDs. 359, 459R
	Crafts:	ArtDs. 461R, 462R
C.	Commercial Design:	ArtDs. 341, 342, 343, 344, 441R, 494R
	Industrial Design:	ArtDs. 336, 436R
	Interior Design:	Int. Env. 240, 331, 430
	Photography:	Comms. 263, 366, 368

Teaching Major (40-hour list)

Courses numbered in the 200 series in a given area must be completed before electing upper-division courses in the same area if they are required as prerequisites:

Fundamentals (10 hours)
ArtDs. 116, 117
Art History (6 hours)
ArtDs. 311, 312
Core Requirements (16 hours)
ArtDs. 236, 241, 261R, 327R, 333R, 350R, 356R, 359R
Upper Division (8 hours)
(2 hours) ArtDs. 321R or 322R
(2 hours) ArtDs. 327 or 333
(2 hours) ArtDs. 336 or 341 or 342 or 343
(2 hours ArtDs. 356 or 359 or 461R or 462R
Electives (5 hours)
Any upper-division art course for which prerequisites have been completed.

Teaching Minor (20-hour list)

ArtDs. 116, 117, 311, 312, and 333R or 241 or 356R or 359R or 361R.

Biology

Composite Teaching Major (48-hour list)

Students majoring in botany or zoology who wish to certify as secondary school biology teachers may do so by completing the required courses for the biology composite teaching major as outlined below and Bot.-Zool. 377 and 479. No grade less than C- will be accepted toward the fulfillment of these requirements.

Required Courses in Biology

Bot. 105, 205, 210, 370 and 372 (or Zool. 371), 440; Bot.-Micro.-Zool. 201; Geol. 103; Micro. 331; Zool. 202, 203, 325, 331, 371 (or Bot. 370, 372), 460, 461.

Recommended Courses in Biology

Bot.-Zool. 250 or Bot. 400; Micro. 411; Bot: 321; Zool. 344.

Recommended Supporting Courses in Other Areas

Any of the following supporting courses may also be used to fill the twelve required units in general education for the physical sciences and the math-science areas:

Math. 105*; Chem. 102*, 103, 281*, 284; Physics 100 or 105, 106, 107, 108; AgHrt. 102, 282.

These are prerequisites for some required biology courses.

Business Education

Composite Teaching Major (51-hour list)

A. Distributive Education

The following courses will be required to satisfy the composite major requirements of business teachers majoring in business education with a distributive education emphasis:

Acctg. 201*, 202*; Bus. Ed. 220, 315*, 320, 325*, 489; Bus. Mgt. 241, 256; Comms. 230; Econ. 110; Org. Behav. 321.

In consultation with and approval of a major adviser, a student will select additional courses from the following areas to make a total of 51 hours in his major: business education, accounting, management, economics, organizational behavior, computer science.

B. Secretarial-Office Administration

The following courses will be required to satisfy the composite major requirement of business teachers majoring in business education with a stenography-office administration emphasis:

Acctg. 201*, 202*; Bus. Ed. 113, 203, 204*, 206, 220, 305, 311*, 320, 370*, 377*, 489; Econ. 110. In consultation with and approval of major adviser, a student will select additional courses from the following areas to make a total of 51 hours in his major: business education, accounting, management, economics, organizational behavior, computer science.

C. Socio-Business

The following courses will be required to satisfy the composite major requirement of business teachers majoring in business education with a socio-business emphasis:

Acctg. 201*, 202*, 356; Bus. Ed. 203*, 220, 305, 320, 489; Bus. Mgt. 200; Econ. 110, 212*. In consultation with and approval of major adviser, a student will select additional courses from the following areas to make a total of 51 hours in his major: business education, accounting, management, economics, organizational behavior, computer science. Elective hours in business must include at least 6 hours from the Accounting Department and 6 hours from the Economics Department.

*Must be completed before student teaching.

Chemistry

Teaching Major (30 to 32-hour list)

Chem. 111, 112, 113, 114 (or 105, 106, 223), 351, 352, 353 (2 hours), 461, 462, 464, and 481, 514, or 521.

Teaching Minor (18 to 19-hour list)

Minor, Dominant, or Related Subject: Chem. 111, 112, 113, 114, (or 105, 106, 223), plus any of the following sequences: Chem. 351, 352, 353 (2 hours); or Chem. 461, 462, 464; or Chem. 252, 481.

Computer Science and Statistics

Teaching Minor (19 to 20-hour list)

(To be used only in conjunction with a mathematics teaching major.)

Computer Science (11-12 hours)
Required: Comput. Sci. 131, 231, 330
Elective: Any computer science course except 110, 130, 233
Statistics (8 hours): Stat. 221, 241, 336 or 520

Driver Safety Education (16-hour-list)

Teaching Minor

(See course requirements under Health Sciences.)

Economics

Teaching Major (30-hour list)

Thirty semester hours, at least 9 of which must be from courses numbered 400 or above, including the following: Econ. 110, 212, 310, 311, 315 or 515, and 387 or 388. (Math. 113, 142, or 385 may be counted for three of the 30 hours.)

Teaching Minor (18-hour list)

Econ. 110, 212, 301 or 311, 300 or 310, and 6 additional hours numbered above 312.

Earth Science

Composite Teaching Major (52-hour list)

All students majoring in earth science who wish to obtain a teaching certificate must take the 52-hour composite emphasis. These hours must include the courses listed below, with a minimum in each group as follows*: 20 hours in geology, 12 hours in physics, 8 hours in chemistry, 4 hours in mathematics, 5 hours in geography, 7 hours in zoology, and 5 hours in botany. Courses are to be selected from the following list:

Geol. 111, 112, 310, 311, 312, 313, 351, 352, 410, 411, 451, 460, 470, 480, 502* (Geol. 104 is an acceptable substitute for 111 if 102 is also taken.)
Physics 127, 137, and either 100, 110; or 121, 122, 214, 221; or 201, 202.
Math. 109 and 110 or 111, 112, and 113
Chem. 105, 106
Geog. 101, 211, 401, 405
Zool. 105, 344*
Bot. 205*, 210, 377

***Note:** Prospective earth science teachers are required to take these courses. (Some may be used to fulfill the general education biological science requirement.)

English

Teaching Major (35-hour list)

Engl. 301, 302, 303, 321, 322 or 325 or 421, and at least 17 hours of upper-division English courses. (Engl. 218 is the only course numbered below 300 that may be counted without the approval of the department chairman; Engl. 377 and 479 and other professional certification courses may not be counted.)

Teaching Minor (20-hour list)

Minor, Dominant, or Related Subject: Engl. 301, 302, 303, 321, 322 or 325 or 421, and additional upper-division English courses to total at least 20 hours.

Note 1: All English majors and minors must take Engl. 251. (See English section for further clarification.)

Note 2: All English teaching majors and minors must take Engl. 377 (before student teaching) in addition to their subject-matter preparation.

Teaching English as a Second Language

Teaching Major (30-hour list)

ESL 527, 528, 583 or Hum. 310, Ling. 325 or 528 or Engl. 321 or 529, a culture course such as Anthrop. 320, 330, 340, 350, 355 or Spanish 445, plus sufficient hours from among the following to make a total of 30 hours: Ling. 423, 426, 528, 531, 590R; Psych. 561; ESL 581, 584, 585R; or approved coursework in instructional psychology, educational psychology, or English.

Teaching Minor (20-hour list)

ESL 477, 527, 528, 583 or Hum. 310, Ling. 325 or Engl. 321 or Engl. 325 or Engl. 422, plus 5 hours from among the following: Ling. 528 or Engl. 529, Ling. 423, ESL 581, 585R.

Note 1: Students majoring in TESL will be allowed to take ESL 577 and 579 in lieu of Ed. 377 and Ed. 479.

Note 2: Foreign students who need additional training in English will be required to take ESL 201.

French

Teaching Major (31-hour list)

French 201, 301, 321, 322, 326, 411, 441, 442, 445, plus 6 hours chosen from 429, 446, 447, 448.

Teaching Minor (20-hour list)

French 201, 301, 321, 326, 440, plus two or more courses chosen from 211, 311, 429, 445.

Note 1: Teaching majors and minors who do not demonstrate adequate proficiency in speaking the language will be expected to enroll for French 211 and 311. All teaching majors and minors in French must take French 377 prior to student teaching. Majors are encouraged to take Ling. 325.

Note 2: Classes up to and including French 201 may be waived for students who demonstrate proficiency in the foreign language. The department chairman will attest such proficiency in a written statement to the Teacher Clearance Office.

Geography

Teaching Major (32-hour list)

Geog. 101, 102, 120, 211, 231, 450, 504, 598, and 13 additional hours to be selected after consultation with a geography adviser.

Teaching Minor (20-hour list)

Minor, Dominant, or Related Subject: Geog. 101, 120, 211, 231, 450, 501, plus 3 elective hours.

Geology

Teaching Major (30-hour list)

Geol. 111, 112, 311, 351, 352, 502; and 11 hours selected from 411, 460, 470, 480, 510, 512. (Geol. 312, 313, and 410 can be used as a 7-hour block of the required 11 hours.)

Teaching Minor (20-hour list)

Minor, Dominant, or Related Subject: Geol. 111, 112, 305, 502, and 8 hours selected from 411, 460, 480, 510. (Geol. 104 is an acceptable substitute for 111 if 102 is taken also.)

German

Teaching Major (34-hour list)

German 201, 301, 321, 322, 326, 377*, 401, 429, 442, totaling 22 hours. At least 12 hours or four of the following courses must be chosen: 423, 441, 442, 443, 444, 495, and Ling. 325.

*377 is required, but does not count as part of the German teaching major; it does satisfy professional education requirements.

Teaching Minor (20-hour list)

German 201, 301, 311, 321, 326, 401, 377. German 440 is strongly recommended for those who have had extended residence in a German-speaking country.

Note 1: Students planning to do all or part of their student teaching in German must take German 377 in advance; however, German 377 may be waived for those students who have had this course in another foreign language.

Note 2: Teaching majors who have not had foreign residence experience or who have not participated in the Semester in Salzburg program will enroll for German 211 and 311.

Note 3: German 201, 211, 301, and 311 may be waived for students who have had residence experience in German-speaking countries and who demonstrate proficiency in German. The department chairman will attest to such proficiency in a written statement to the Teacher Clearance Office.

Health Sciences

Teaching Major (32-hour list)

Health 325, 381, 430, 451, 460, 552*, and the following courses or equivalent from other departments: FSN 115; Zool. 260 and 261; Psych. 321; and at least 8 hours from the following courses: Health 370, 465, 501R or 503R, 561, 660; Micro. 311; Sociol. 329, 340; Psych. 240, 440.

*Health 552 may be substituted for Health 362 for teacher certification.

Teaching Minor (20-hour list)

Health 377, 381*, and 14 hours selected from the following courses: Health 325, 430, 451, 460, 465, 501R or 503R, 552, 561*; FSN 115; Micro. 311; Psych. 240 and/or 321.

*If required in student's major program, the health education minor will be 17 hours.

Driver and Safety Education Minor—Related (16-hour list)

Health 121 or 430, 325, 444, 445, 446, and 4 hours selected from the following courses: Health 460, 502R, 525; Psych. 321, Ed. 406. The student's program must be approved by his Health Science Department adviser.

History

Teaching Major (35-hour list)

Required: Hist. 100, 110, 111, 170, 270, 466, 490. Recommended: 488, plus sufficient hours from the list below to bring the total up to 35 hours.

Teaching Minor (20-hour list)

Minor, Dominant, or Related Subject: Hist. 110, 111, 170, 270, 466, plus sufficient hours to bring total up to 20 hours.

Approved courses

Hist. 300, 302, 304, 307, 310, 311, 312, 313, 320, 322, 323, 326, 327, 329, 330, 331, 332, 333, 334, 335, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 351, 352, 370, 372, 375, 377, 378, 379, 412, 415, 424, 425, 429, 433, 435, 436, 440, 445, 453, 454, 455, 457, 459, 460, 462, 463, 465, 467, 469, 471, 472, 473, 474, 475, 476, 477, 490, 497, 498; Geog. 451; Econ. 371, 374.

Home Economics Education

Composite Teaching Major (52 to 54-hour list)

Home Ec. Ed. 101, 375, 489; CDFR 210, 322, 360 (one of 361, 445, 461); Nurs. 425; FSN 235, 236, 264, 265, 340; Int. Env. 240; FEHM 335, 336, 350, 370 (one of 295, 415, 460); Clo. and Text. 165, 260 (two of 110, 235, 300, 355). Please consult a Department of Home Economics Education adviser for selection of a suitable program.

Humanities

Composite Teaching Major (56 to 58-hour list)

Humanities majors must select one of the following dominant fields:

English: 20-hour list.
Foreign Language: 20-hour list in either German, Russian, French, Spanish, or Latin. Students selecting foreign language as the dominant area must complete 12 hours of literature courses on the 400 (senior) level.

In addition to the dominant field, all humanities majors must complete the following:

Art and Design: 6 credit hours.
English: 6 credit hours of literature courses (for students with a foreign language dominant area).
Foreign Language: 6 credit hours of literature in 400 (senior) level (for students with English dominant area).
History: 6 credit hours.
Humanities: 12 credit hours, including Hum. 201, 202, 490, plus either 240 or 261.
Music: 5 credit hours, selected from Music 101, 103, 484, 485.
Philosophy: 6 credit hours.

In those areas where specific courses are not listed, the student must clear with his adviser in the Department of Humanities and Comparative Literature.

Industrial Education

Composite Teaching Major

Core List: All students must take the following courses: Des. Tech. 111, Ind. Ed. 100, 101, 129, 240, 250, and 289.

Technical Depth Area: An additional 27 semester hours must be selected from the following technical areas. A minimum of 6 semester hours (including the core classes) must be taken in each of 4 areas.

Crafts: Ind. Ed. *260, 360, and 365.
Design Technology: Des. Tech. 211, 212, 256, 310, *355, 410, and 436.
Electronics: Elect. Tech. *102, 103, 221, 231, 232, and 235.
Graphic Arts: Ind. Ed. *351, 451, 452, 453, and 454.
Metals: Ind. Ed. *130, 139, 329; Mfg. Tech. 331, 335, and 337.
Plastics: Ind. Ed. 300, 329, *440; Mfg. Tech. 360 and 431.
Power-Auto: Ind. Ed. 189, 387, 388, 389, and 489.
Woods: Ind. Ed. 105, 200, 210, 300, 319; Bldg. Tech. 211, 301; and Mfg. Tech. 337.

***Professional Ind. Ed.:** Ind. Ed. 377, 405, 470, 479, and **540.

***Professional Ed.:** Ed. 301, 310, 403R, 415; and Health 362.

Technical Teacher Education

This curriculum is designed to prepare teachers for technical and industrial programs in high and posthigh-school institutions. Admittance to the program requires approval of the department, a minimum GPA of 2.25, and either the Associate of Science degree in a technical area or completion of the courses for the associate degree.

***Core List:** Ind. Ed. 100, 101, 129, 240, 250, 289, and Des. Tech. 111.

Technical Area: An associate degree or an approved program for an associate degree in technical area. Additional courses must be selected from the technical depth area. The core class in the technical area may be deleted, allowing a total of 30 semester hours for the technical area and 18 semester hours for the core area.

***Professional Ind. Ed.:** Ind. Ed. 377, 405, 470, 479, and **540.

***Professional Ed.:** Ed. 301, 310, 403R, 415; and Health 362.

*Required.

**May receive graduate credit if approved to be taken last semester.

Instructional Media

Teaching Minor (16-hour list)

Selected from the following courses: Ed. 406 or 506, 509, 510, 520, 524, 526; LIS 513, 523, 528, 557; Engl. 420. Endorsement for instructional media requires proficiency in each of the following areas: cataloging and classification, selection and utilization of media, media production, and media administration. Consult with adviser before registering.

Journalism (Communications)

Teaching Major (32-hour list)

Comms. 101, 201, 211, 230, 255, 307, 312, 323, 480; 7 hours selected from Comms. 263, 272, 331, 335, 340, 346, 347, 365, 420, 427, 434, 528, 550, Theatre 317. (An internship, Comms. 495, may be substituted for Comms. 323.)

Teaching Minor (20-hour list)

Minor, Dominant, or Related Subject: Comms. 101, 211, 312, 323R, 480; five hours selected from Comms. 201, 230, 255, 263, 307, 335, 420. (An internship, Comms. 495R, may be substituted for Comms. 323).

Latin

Teaching Major (32-hour list)

Latin 201, 301, 321, 322, 431, 432, 441, 442; Classical Civilization 341 and 442; and one course from Latin 429, 561, or 621.

Teaching Minor (20-hour list)

Latin 201, 301, 321, 431 or 432, 441 or 442, 490R; Classical Civilization 341.

Mathematics

Teaching Major (32-hour list)

Required: (a) Math. 112, 113, and 214; or Math. 141, 142, 243 and 244. (b) Math. 301, 302, 371, 451. Electives: A minimum of 9 semester hours selected from Math. 210, 300, 315, 332, 372, 385, 387, 411, 434, 452, 512, 541, 542, 551, 552.

Teaching Minor (20-hour list)

Math. 112, 113 and 214; or Math. 141, 142, 243 and 244; Math. 301, 302, and either 371 or 451.

Music Education

Composite Teaching Major (67-hour list)

Music 103*, 165 (for voice specialty only), 195, 196, 200R, 202, 295, 296, 363**, 364**, 367, 368, 370, 372, 374, 375, 376, 377, 378, 472, 481, 484*, 485*; complete 6 hours of ensemble, 12 hours of private instruction in the student's applied specialty, and pass a piano proficiency requirement equivalent to four semesters of piano before student teaching.

Note: Please refer to Department of Music requirements in this catalog for recital and ensemble requirements.

*These courses are included in general education.

**For students with instrumental specialties only. Those students taking voice as a specialty should take Music 566 instead of Music 363 and 364.

Physical Education

Teaching Major (36-38.5 hours)

Sports: All students must complete the core courses and those listed for either men or women.

Core (19 hours)

P.E. 233, 236, 238, 240, 279 or 280, 330, *340, *341, *344, 378, *446.

Men (25 hours)

P.E. 231, 232, 234, 235, 237, 239, 464; two of the following: 370, 371, 372, 373, 374; and 10 credits from the following: 250, 264, 265, 279 or 280, 314, 370, 371, 372, 373, 374, 406, 411, 449, 474R, 547, 570, 571, Rec. Ed. 570, Health 381.

Women (20-22 hours)

P.E. 241, 242, 243, 244, 245, 246, 247, 248, 249, 375 or 376, 388, 407 or 474R, 461; 5 hours selected from Health 430, 381, P.E. 314, 449, Youth Ldr. 378, CDFR 130.

Dance: Students must complete core courses and all courses listed in either the dance emphasis (men or women) or dance specialization.

Core (28.5 credit hours)

P.E. 202, *287, *288, 330, *341, *344, *378, 380, 382, 383, 385, 387, 388, 389, 446, 486.

Dance Emphasis—Men (9 credit hours)

P.E. 279 or 280, 385 or 376; 6 hours of the following: 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 372, 373.

Dance Emphasis—Women (9.5 credit hours)

P.E. 108, 279 or 280, 375 or 376; 6 hours from the following: 233, 236, 238, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249.

Dance Specialization (9.5 credit hours)

P.E. 108, 181 or 180, 183, 279, 280, *290, 480, 481, 490, 587.

*Course has prerequisites.

Teaching Minor (19-20 hours)

Dance Specialty: Both men and women complete courses as listed. P.E. 180, 181, 185, 186, 187, 188, 279 or 280, 287R, 288R, 330, 380, 383, 387, 388, 389, 486.

P.E. 378W must be successfully completed if a Physical Education Dance Specialty minor is to be assigned to student teaching in this minor.

Sports Secondary Certification (19-20 credit hours): Students may minor in physical education by completing all core courses and the course requirements for either men or women.

Core (10 credit hours)

P.E. 279 or 280, 330, 341, 344.

Men (9 to 10 credit hours)

P.E. 235; 2 hours from the following: 231, 232, 233, 234, 236, 237, 238, 239, 240; two of the following: 370, 371, 372, 373, 374; one of the following: 314, 340, 446, 464.

Women (10 credit hours)

Candidacy test, swimming (1 hour) P.E. 376, 7 hours from the following: 108, 233, 236, 238, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249. P.E. 378 must be successfully completed if a P.E. sports emphasis minor is to be assigned to student teaching in this minor.

Coaching (20-hour Minor): Students must complete core requirements and those listed for either men or women.

Core: P.E. 341, 344, 378, 411, 449.

Men: 2 credits from 231-240; 4 credits from 370-374; 406.

Women: 3 credits from 233-249, 264, 265; 3 credits from 472R, 463, 570, 571; 407 or 474.

Physics

Teaching Major (28-hour list)

Physics 121, 122, 214, 221, 222, 300, 316 and an additional 11 hours (9 of which should be upper division) chosen from 127, 137, 317, 321, 341, 386, 387, 441.

Teaching Minor (17-hour list)

Minor, Dominant, or Related Subject: Physics 121, 122, 214, 221, 222, 300, 316.

Political Science

Teaching Major (30-hour list)

Required introductory courses: Pol. Sci. 110, 150, and 170.

Required upper-division courses: Pol. Sci. 300 (normally taken before other upper-division courses), 302.

Electives to complete the major should be balanced among the following fields, selected in consultation with an adviser: political theory and philosophy—301, 307; American poltical system—310, 311, 312, 313, 314, 315, 319R, 329R, 330, 339R, 360, 361, 363, 364, 368; comparative political systems—350R, 351R, 352R, 359R, 370, 373, 375, 377R, 378R, 499, 512.

Teaching Minor (20-hour list)

Required introductory courses: Pol. Sci. 110, 150, and 170.

Required upper-division courses: Pol. Sci. 302 and other 300-level elective courses balanced among the fields listed above.

Psychology

Teaching Major (30-hour list)

Psych. 111, 321, 369, (or 370 and 374), 491R or 497; one of the following: 240, 440, or 445; and three of the following courses: Psych. 360, 365, 450, 460.

The remaining credit hours must be selected from the following: Psych. 211R, 320, 322, 330, 336, 350, 357, 360, 365, 369, 370, 374, 378, 450, 454, 460, 491R, 495R, 497.

Teaching Minor (20-hour list)

Minor, Dominant, or Related Subject: Psych. 111, 321, 369, and one of the following: 440, 445, or 450.

The remaining credit hours must be selected from the following: Psych. 211, 240, 320, 322, 330, 336, 350, 357, 360, 365, 370, 374, 378, 450, 454, 460, 491R, 495.

Recreation Education

Physical Education—for composite majors using recreation courses.

Related (16-hour list)
Rec. Ed. 301, 337, 371, 387, 388, 407, 505.

Russian

Teaching Major (31-hour list)
Russian 201, 301, 311, 321, 322, 326, 345, 411, 412, 440, 441, 442.

Teaching Minor (21-hour list)
Russian 201, 301, 311, 321, 322 or 326, 345, 411 or 412, 441, 442.

Note 1: It is strongly recommended that teaching majors take Ling. 325. Both teaching majors and minors must take Russian 377 or an equivalent foreign language methods class prior to student teaching.

Note 2: Classes up to and including Russian 301 may be waived for students who demonstrate proficiency in the foreign language. The department chairman will attest such proficiency in a written statement to the Teacher Clearance Office.

Sociology

Teaching Major (30-hour list)
Sociol. 111, 112 (or 205), 211, 300, 526, and three of the following: 320, 330, 350, 380.
The remaining hours are to be selected from the following: Sociol. 115, 223, 245, 330, 340, 352, 357, 370, 381, 383, 389, 411, 412, 497R.

Teaching Minor (20-hour list)
Minor, Dominant, or Related Subject: Sociol. 111, 112, 320, 526. The remaining hours are to be selected from the major list above, preferably from the required courses.

Note: Sociol. 205 has as a prerequisite Math. 105 or its equivalent.

Spanish

Teaching Major (32-hour list)
Spanish 201*, 301*, 321, 322 or 439, 326, 377**, 441, 445, 451, 455, plus 4 credit hours selected from the following: 311***, 322 or 439, 345R, 454, 458, 470R, 485, 490R, 520, 522, 556, 580R or 584.

Teaching Minor (21-hour list)
Spanish 201*, 301*, 321, 326, 377**, 441 or 451, 445 or 455, and an additional 2 hours from the 400- or 500-level courses listed under Teaching Major.

***Note:** Classes up to and including Spanish 301 may be waived for students who demonstrate proficiency in the foreign language. The department chairman will attest such proficiency in a written statement to the Teacher Clearance Office.

****Note:** Spanish 377 is required for both majors and minors and must be taken prior to student teaching. It is part of the education requirement for certification and does not count as language credit. This requirement will be waived for students majoring in another language who have had the course in that language.

*****Note:** It is strongly recommended that teaching majors and minors who have not had foreign residence or participated in a semester abroad program take Spanish 311. This course may not be counted for elective credit by natives or returned Spanish-speaking missionaries.

Theatre and Cinematic Arts

Students planning to teach theatre arts on the secondary level must complete the following:

Teaching Major (33 hours)
Theatre 115, 123, 124, 126, 320, 325, 360, 362, 371, 460R, 461R, and 564 or 565.

Teaching Minor (20 hours plus 377)
Theatre 123, 124, 126, 320, 371, 460R, and 461R. Theatre 377 is also required for minors. Recommended but not required are Comms. 101 and 102 and Theatre 115 and 121.

Department of Educational Administration

Professors: Burrup, Cottrell, Heaton, Oakes, Ovard, Smith (Chairman, 207 MCKB), Van Alfen.
Associate Professors: Hyatt, Rogers, Stephens, Wasden.

The Department of Educational Administration offers graduate programs only leading to the Master of Education (M.Ed.), Educational Specialist (Ed. Sp.), and Doctor of Education (Ed.D.) degrees. The department has assumed responsibility for the training and preparation of elementary, secondary, and junior college administrators and instructional supervisors. Students who intend to pursue an advanced degree in the Department of Educational Administration are advised to consult the **Graduate School Catalog** for admission and general degree requirements, and the department for detailed requirements of degree programs.

Department of Educational Psychology

Professors: Bauer, Black, Downing, Harris, B. Harrison, Jensen, Kelly, Low, Merrill, Newman, Rohde, VanMondfrans.
Associate Professors: Bingham, Chamberlain, Crandall, Faust, Gale (Chairman, 180 CHLC), Goodman, G. Harrison, Heaps, Hendrix, Johnson, Jones, Peterson, Schneider, Snow, Thomas, Weaver, Winward, Wootton.
Assistant Professors: Brown, Buckner, Card, Green, Hammond, Kay, Wadham, Walton, Wood.
Instructors: Craig, Ravsten.

The Department of Educational Psychology offers programs leading to the bachelor's degree in special education, and to graduate degrees—M.A., M.Ed., MCD, Ed.D., Ph.D., and Sixth-Year Specialist—in the areas of school psychology, instructional psychology, counseling and guidance, instructional media, and special education. Programs leading to certification in the above areas are also offered.

The programs in school psychology, instructional psychology, counseling and guidance, and instructional media are graduate programs, and those interested should refer to the current issue of the **Graduate School Catalog.**

The Institute for Special Education, as a part of the Department of Educational Psychology, offers programs to prepare teachers of mentally handicapped, learning disabled, visually handicapped, and emotionally handicapped children, as well as programs in communicative disorders and audiology, and it offers a composite major with elementary education and special education. For information on specific requirements, the student should contact the program chairman of special education, 245 TRLC, or the program coordinator in the specific area of exceptionality. For graduate programs in special education refer to the current issue of the **Graduate School Catalog.**

The Master of Communicative Disorders (MCD) is granted to those who complete the five-year program of professional training in communicative disorders. Completion of the communicative disorders program qualifies a student for professional certification in speech pathology or audiology. Associated work in learning disabilities and elementary education qualifies the student for additional certification in learning disabilities and elementary education. In the fifth year of professional preparation, students may elect to complete master's degree requirements in (1) full-time enrollment or (2) part-time enrollment accompanied by on-the-job training in communication/learning disabilities.

Courses

60. Remedial Speech. (0:0:4)
Tutorial and small group work to assist college students who have disorders of communication such as articulation difficulties or stuttering. A noncredit, nonfee service course.

130. Introduction to Human Communication Processes. (2:2:0)
A survey and application of intra- and interpersonal human communication.

200. Educational Exploration. (2:2:1) (m) Prerequisite: approved application to the Elementary Program.
An examination of the teaching profession and an evaluation of one's self as a potential elementary teacher. GPA of 2.5 required. $10 fee payable at midterm.

231. Normal Development of Human Communication. (2:2:1)
Influence of physiological maturation and learning on normal development of human communication.

232. Phonetics. (2:2:0)
The course introduces the student to phonetic modes of thought and to phonetic symbols. It uses phonetic nomenclature in describing the principal varieties of the English language in America.

242. Remediation of Communicative Disorders. (2:2:0)
Demonstrates how parents, teachers, and others can help children with speech, hearing, or language disorders in the home or within the context of the regular curriculum.

260. Education of Exceptional Children. (3:2:2) Home Study also.
Designed to acquaint the student with the causes, recognition, incidence, and characteristics of all exceptionalities.

300. Teacher Assistant Experience. (1-8:Arr.:Arr.) (m) Prerequisite: Ed. 200.
Learning theory, teaching techniques, and principles of child development. One-half day in a public school for a full semester.

301. Basic Concepts and Principles of Teaching. (2:2:1) Home Study also. Prerequisite: GPA 2.25. Persons must have passed Grammar and Spelling Test for Teachers or English ACT with a score of 20 or above.
Teaching-learning sequence for potential secondary teachers.

330. Teaching Foreign Language in the Elementary School (FLES). (2:2:Arr.) Prerequisites: Ed. 300 and a modern language course 326. Offered Fall Semester only.

340. Children's Literature. (2:2:0) Home Study also.
Evaluation of significant books that meet children's needs. Not open to freshmen.

342. Communication Disorders 1. (6:5:10) Prerequisites: Ed. 130, 231, 232.
Principles and application in diagnosis and habilitation of dysfunctions of communication: communicative relationships, affect, attention, memory, conceptualization, codification, and speech production.

350. Methods and Strategies of Teaching. (1-8:Arr.: Arr. ea.) (m) Prerequisite: Ed. 300.
Principles and methods of teaching mathematics, reading, science, social studies, and language arts. Ed. 400 application and fee ($45) required during Ed. 350.

355. Communication Disorders 2. (4:3:3) Prerequisites: Ed. 130, 231, 232.
Principles and application in diagnosis and habilitation of dysfunctions of communication: auditory, visual, and haptic sensation. Includes conduction and interpreting audiometric tests.

357. Communication Disorders 3. (6:5:10) Prerequisites Ed. 342, 355.
Principles and application in diagnosis and habilitation of dysfunctions of communication: auditory, visual, haptic perception; motor production. Managing the hearing impaired. Introduction to hearing aids.

361. Education of the Mentally Retarded. (3:2:2) Home Study also. Prerequisite: Ed. 260.
Identification, classification, and characteristics of the retarded and general problems in their care, management, and education.

362. Education of the Visually Handicapped. (3:2:2)
Study of the identification, classification, and characteristics of visually handicapped children, and general problems in their care and education.

371. Arts and Crafts for the Handicapped. (3:2:2)
Basic principles of and experience with craft activities, with emphasis on adaptations to meet the needs of individuals with disabilities.

372. Educational Implications of Visual Impairment. (3:2:2) (m) Prerequisite: Ed. 260.
Structures, functions, and impairments of the organs of vision; educational implications of visual loss.

373. Standard English Braille. (3:3:0)
Systematic presentation of Standard English Braille for those who intend to teach the visually handicapped or do volunteer transcribing. Not a course in touch reading.

377. Secondary Teaching Curriculum and Methods. (3:3:1) Prerequisite: Ed. 301.
Methods of teaching subject matter to junior and senior high students.

381. Introduction to Teaching Children with Learning Disabilities. (3:2:2) (m) Prerequisite: Ed. 260.
Classroom identification, diagnosis, and adjustment of curriculum for special and regular classroom teachers to meet the needs of children with learning disabilities.

400. Classroom Teaching Experience. (8:Arr.:Arr.)
Special fee and prior application required.

402. Educational Psychology. (2:2:0)
Psychological facts, principles, and concepts related to the teacher-learning situation.

403R. Development and Learning. (1-4:Arr.:Arr. ea.) Home Study also.
Attention is given to such topics as the learning process, readiness, individual differences, motivation, and evaluation.

406. Educational Media Production and Utilization. (2:1:3)

410. The State, the School, and the Teacher. (2:2:0) Home Study also.
The school and its relationship to the community, the state, and the nation. Emphasis on Utah school organization and school laws.

415. Educational Values. (2:2:0) Home Study also.
An analysis of educational values and how teachers can help students clarify what they value and why.

431. Learning Abilities of Exceptional Children. (3:3:2) (m) Prerequisites: Ed. 260 and consent of instructor.
Learning as it relates to specific characteristics of exceptional children.

440. Communication Disorders 4. (6:5:10) Prerequisites: Ed. 342, 355, 357.
Principles and application in diagnosis and habilitation of dysfunctions of communication in school settings with relation to arithmetic, reading, writing, spelling, language, and speech production.

441. Diagnosis of Communication-Learning Dysfunctions. (3:2:6) Prerequisites: Ed. 342, 355, 357, 440.

Applying diagnostic information in planning habilitation of dysfunctions of communication-learning processes, including sensation, perception, memory, attention, cognition, language, speech, and other communicative relationships.

450R. Analysis of Teaching in Elementary Schools. (1-2:Arr.:Arr.) Prerequisites: Ed. 400 and department clearance.

Advanced instructional techniques.

451. Audiology. (2:2:4) Prerequisites: Ed. 342, 355, 357.

Skill in administering advanced audiometric tests is developed. Includes conducting and interpreting advanced audiometric tests.

465. Education of the Emotionally Disturbed. (3:2:2) Prerequisite: Ed. 260.

Identification, classification, and characterization of the emotionally disturbed; general problems in their care, management, and education.

468R. Practicum in Special Education. (2-4:0:5-10 ea.) Prerequisite: consent of instructor.

Sections will include the mentally retarded, the visually handicapped, the learning disabled, and the emotionally disturbed. Special fee and prior application required.

470. Community Resources for Exceptional Children. (3:2:2) Prerequisite: Ed. 260.

Vocational planning and school, community, and parent relationships are considered.

471. Curriculum for Mentally Retarded Children. (3:2:2) Prerequisite: Ed. 361.

Placement and organization of educational programs, curriculum development, and teaching methods for classes for mentally retarded students are considered.

476. Secondary Teacher Education. (1-21:Arr.:Arr.) Prerequisite: acceptance to enter certification program in College of Education.

Professional education certification experiences for social studies majors and departmentally approved secondary teacher candidates. A lab fee of $45 is charged, payable upon application for student teaching.

479. Secondary Student Teaching. (2-8:1:20-40) Prerequisites: Ed. 301, 377.

Public school classroom experience. Application must be filed in the Teacher Clearance Office before receiving an assignment (fee $45).

481. Curriculum for the Learning Disabled. (3:3:0) (m) Prerequisite: Ed. 260, 381, or consent of instructor.

Organization of educational programs, curriculum development, and teaching methods for children with learning disabilities.

490R. Seminar. (1-2:1-2:0 ea.) Prerequisite: consent of instructor.

493R. Readings. (1-2:Arr.:Arr. ea.)

500. Adult Education. (3:3:0) Home Study also. (m) Prerequisite: student teaching, teaching certificate, or departmental approval.

506. Educational Media in the School. (3:2:3) Prerequisite: Ed. 406.

Overview of the media field with emphasis on instructional applications.

509. Selection and Utilization of Instructional Media. (2:2:0) Prerequisite: Ed. 506.

Principle of selection, evaluation, and utilization of instructional materials. Examination of variety of "helps" to effective selection and utilization.

510. Media Production Techniques. (2:1:3) Prerequisite: Ed. 506.

An in-depth exploration of the various tools and techniques appropriate to the production of instructional materials.

514R. Special Topics in Education. (1-3:1-3:1 ea.) Home Study also.

520. Photography in Instruction. (2:1:3) Prerequisites: Ed. 506; Comms. 263 or equivalent.

The processes, techniques, and equipment applicable to the preparation of photographic instructional materials.

524. Art and Graphic Processes in Instruction. (3:2:3) Prerequisite: Ed. 506 or consent of instructor.

Preparation of instructional materials or reproduction masters using art and graphic processes.

526. Instructional Use of Audio Programs. (2:1:3) Prerequisite: Ed. 509.

Design, development, and utilization of audio materials and systems for large- and small-group and individual learning.

527. Readiness and Beginning Reading. (2:2:0) (m) Prerequisite: Ed. 400 or teaching certificate.

533. Kindergarten Education. (2:2:0) Prerequisite: CDFR 321, Ed. 400, or teaching certificate.

534. Innovative Practices in the Elementary School. (3:3:1)

536. Secondary Curriculum Methods. (3:3:0)

Analysis of differences among the various curriculum and instructional patterns, emphasizing their impact on individualized learning .

547. Foundations in Reading K-12. (3:3:0) Prerequisite: teaching certificate or consent of instructor.

550. Counseling and Guidance Services. (2:2:0) Home Study also.

Principles and practices of pupil personnel services in the public schools.

560. Educational Tests and Measurements. (3:3:0) Home Study also. Prerequisite: Ed. 403R or equivalent.

Principles of test construction and use. Interpretation of standardized tests.

562R. Curriculum for the Visually Handicapped. (1-4:Arr.:Arr. ea.) Prerequisites: Ed. 362, 373.

Problems confronting administrator and teacher in the different types of school programs now available for the visually handicapped. Specialized teaching methods and materials.

565. Education of Emotionally Handicapped Children. (3:3:1) Prerequisites: Ed. 260 and consent of instructor.

Organization of educational programs, curricular development, and teaching methods for students with emotional problems.

568R. Directed Observation in the Schools. (2:1:4 ea.) Prerequisite: consent of instructor.

570R. Special Education: Graduate Core. (1-3:Arr.:Arr. ea.) Prerequisite: graduate standing.

Sections to include psychosocial educational implications of physical, mental, and social disabilities; behavioral science foundations for special education; and basic concepts in the evaluation of individual differences in exceptional children.

573. Workshop for Teachers of Bilingual Children. (2:8 hrs./day for 2 weeks)

Study of educational needs, materials, and methods appropriate to the background and language problems of bilingual students.

578R. Practicum in Teaching. (1-4:Arr.:Arr. ea.)

An application for a specific assignment must be filed with the Student Teaching Office one semester before receiving an assignment. A laboratory fee of $25 is charged, payable upon application for student teaching.

581R. Proseminar in Instructional Psychology. (3:3:0) (m) Prerequisite: consent of coordinator.
An interdisciplinary survey of topics in instructional psychology. Lectures by several different faculty members.

585. (Ed.-Rec. Ed.) The Community School. (2:2:1) Home Study also. I. Heaton, Olsen, Rogers
Basic concepts of the community school, including its history, organization, funding, leadership, facilities, and value to the community.

600. Research Design in Education. (3:3:0) Prerequisite: graduate standing.

601. Comparative Current Educational Philosophy. (3:3:0) (m)

602. Methods and Problems of Research in Communication Disorders. (2:2:0)

603. Educational Classics and Contemporary Issues. (3:3:0) (m)

604. Seminar in the Generation and Perception of Acoustic Stimuli. (2:2:0)

605. (Ed.-Rec.Ed.) Community School Administration. (2:1:Arr.) I. Heaton, Olsen, Rogers

606. History of Education in Europe and America. (4:4:0) (m)

607. Education in a World Setting. (2:2:0)

608. Social Foundations of Education. (3:3:0) (m)

609. Anatomy and Physiology of Human Communication. (2:2:0) Prerequisites: Zool. 105, 260, 261.

610. Designing and Producing Instructional Materials. (2:2:1) Prerequisites: Ed. 510, Psych. 460, and one of the following: Ed. 520, 524, or 526; or consent of instructor.

611. Coordination of Educational Media. (2:2:0) Prerequisite: Ed. 509.

612R. Supervision of Student Teachers. (1-3:Arr.:Arr. ea.) Prerequisite: teaching certificate.

614. Communication Disorders of the Cerebral Palsied. (2:2:1) Prerequisite: Ed. 609.

615. Disorders of Articulation. (2:2:2) Prerequisite: undergraduate major in communicative habilitation or speech pathology.

616. Stuttering. (2:2:1)

617. Voice Disorders. (2:2:1)

618. Aphasia. (2:2:1)

619. Oro-Facial Communication Disorders. (2:2:1)

620R. Master's Admission Seminar. (1-3:2:2 ea.) Prerequisite: teaching certificate.

621. Communication Disorders of the Mentally Retarded. (2:2:1)

623. Teaching Science in the Elementary School. (2:2:0)

624. Dynamics of Human Communication. (2:2:0)

625. Teaching Social Studies in the Elementary School. (2:2:0) Prerequisite: teaching certificate.

626R. Special Problems in Communicative Disorders. (1-3:1-3:0 ea.) Prerequisite: consent of instructor.

627. Teaching Reading in the Curriculum. (2:2:0) Prerequisite: teaching certificate or consent of instructor.

628. Children's Literature. (2:2:0) Prerequisite: Ed. 340.

629. Clinical Audiology. (2:2:2)

630. Community and Industrial Audiology. (2:2:1)

631. Curriculum Development in the Elementary School. (3:3:0)

632. Research and Literature in Reading. (2:2:0) Prerequisites: Ed. 547 and 627.

633. Teaching Language Arts in the Elementary School. (2:2:0) Prerequisite: teaching certificate.

634. Pediatric Audiology. (2:2:1)

635. Teaching Mathematics in the Elementary School. (2:2:0) Prerequisite: Ed. 350 (mathematics) or equivalent.

636. Secondary Curriculum and Methods: Design. (3:3:0) Prerequisite: Ed. 536.

637. Organization and Supervision of Reading Programs K-12. (2:2:0) Prerequisites: Ed. 547, 627.

638. Hearing Aids and Instrumentation. (2:2:0)

639. History, Education, and Guidance of the Hearing Impaired. (2:2:0) Prerequisites: Ed. 130; Ed. 260.

640. The Community College. (3:3:0) Prerequisite: graduate standing.

641. Aural Rehabilitation. (2:2:2) Prerequisites: Ed. 130, 231.

642. Methods of College Instruction. (3:3:0) Prerequisite: graduate standing.

644R. Directed Teaching in College. (1-4:4:0) Prerequisite: Ed. 642.

645. Guidance Testing and Diagnosis. (3:3:0) Prerequisite: Ed. 550.

646. Counseling Theory and Practice. (3:3:0) Prerequisite: Ed. 550.

647. Group Techniques for Counselors. (3:3:0) Prerequisite: Ed. 646.

648. Laboratory in Counseling Practice. (1:0:2) Prerequisite: completion of or concurrent registration in Ed. 550, 646.

651. Informational Services in Guidance. (3:2:2-4) Prerequisite: Ed. 550.

652. Organization of Guidance. (2:2:0) Prerequisite: Ed. 550.

653. Student Personnel Services in Higher Education. (2:2:0) Prerequisite: Ed. 550.

654. Elementary School Guidance. (2:2:0)

655. Laboratory for Guidance Services. (1:0:2) Prerequisite: completion of or concurrent registration in Ed. 652.

656. Advanced Educational Psychology. (3:3:1) Prerequisite: Ed. 403R.

657. Behavior Problems in the Schools. (2:2:0) Prerequisite: Ed. 403R.

658. Evaluation and Criterion Assignment. (3:2:1) Recommended: Psych. 378 or 678 or Ed. 560.

659. Basic Principles of Instructional Psychology. (3:3:2) Prerequisite: Psych. 460 or equivalent.

660. Research Design and Technical Writing in Education. (3:3:0) Prerequisite: Stat. 552.

661. Experimental Research in Instructional Psychology. (3:2:4) Prerequisite: Stat. 554 or 501; or Psych. 670.

662R, 663R. Advanced Topics in Special Education. (1-3:Arr.:Arr. ea.) Prerequisite: Ed. 570R.

664R, 665R. Learning Disabilities. (2:1:2 ea.) Prerequisite: Ed. 570R.

666. Special Education Services in Public Schools. (2:2:0) Prerequisite: Ed. 570R.

667. Diagnosis of Achievement Difficulties. (3:2:2) Prerequisite: consent of instructor.

668. Remedial Teaching Techniques. (3:2:2) Prerequisites: Ed. 667 and consent of instructor.

669. Guidance and Counseling for the Handicapped. (2:2:0) Prerequisite: Ed. 260.

673R. Practicum in Educational Psychology. (2-4:1-2:4-8 ea.) Prerequisite: consent of instructor.

674. Advanced Seminar in Special Education. (1-3:Arr:Arr.) Prerequisite: Ed. 570R.

675. Organization and Administration of Public Schools. (3:3:0) (m) Prerequisite: graduate standing.

678. Elementary School Administration. (3:3:0) (m) Prerequisite: Ed. 675.

677. Public School Finance. (3:3:0) (m) Prerequisite: Ed. 675.

679. Secondary School Administration. (3:3:0) (m) Prerequisite: Ed. 675.

680R. Internship in Education. (2-6:0:6-18 ea.) (m) Prerequisite: consent of instructor eight weeks in advance of registration.

681R. Internship Practicum in Speech Pathology. (1-2:0:4 ea.)

682. The Teacher and School Administration. (2:2:0) (m) Prerequisite: Ed. 678 or 679.

683R. Internship Practicum in Audiology. (1-2:0:4 ea.)

684R. Graduate Practicum in Audiology. (1-2:0:1-2 ea.)

685. Supervision of Education. (3:3:0) (m) Prerequisite: Ed. 675.

687. School Law. (2:2:0) (m) Prerequisite: Ed. 675.

690R. Seminar. (2:2:0 ea.) Prerequisite: consent of instructor.

691. Doctoral Admission Seminar. (2:2:0 ea.) Prerequisite: permission of department.

693R. Independent Reading. (1-5:Arr.:Arr. ea.) Prerequisite: consent of instructor.

696R. Independent Research. (1-4:Arr.:Arr. ea.) Prerequisite: consent of instructor.

698R. Field Project. (2-4:Arr.:Arr.) Prerequisite: Stat. 552 and Ed. 600 or equivalent.

699R. Thesis for Master's Degree. (6-9:Arr.:Arr.)

709. Educational Planning and Decision Process. (3:2:2) (m)

712. Media in Instructional Systems. (3:3:0) Prerequisite: Ed. 509.

727. Curriculum of the Public Schools. (2:2:0)

731. Systems Analysis and Research Development Management. (3:3:0) (m) Prerequisite: Comput. Sci. 131 or equivalent.

740. Advanced Counseling Theory. (2:2:0) Prerequisites: Ed. 646; Psych. 550.

741. Practicum in Counseling. (3:1:8) Prerequisite: consent of instructor.

751. Research Design for Doctoral Dissertation. (2:2:4) Prerequisites: doctoral candidacy and Stat. 552 or equivalent.

760R. Contemporary Problems of School Administration. (2:2:0) (m) Prerequisite: Ed. 678 or 679.

765. Business Administration of the Public School. (2:2:0) (m) Prerequisite: Ed. 677.

768. Leadership in Educational Administration. (3:3:0) (m)

769. School-Community Relations. (2:2:0) Prerequisite: Ed. 675.

770. Administration of Continuing Education. (2:2:0) (m) Prerequisite: graduate standing.

771. Community College Administration. (2:2:0) (m) Prerequisite: Ed. 640.

772. Community College Curriculum. (2:2:0) Prerequisite: Ed. 640.

773. Public School Building Programs. (3:3:0) (m) Prerequisite: Ed. 677 or 687.

775. Theory in Educational Administration. (2:2:0) (m) Prerequisite: Ed. 675.

780R. Internship in Education. (2-8:0:6-24 ea.) Prerequisite: consent of instructor eight weeks in advance of registration.

790R. Seminar. (2:2:0 ea.) Prerequisite: consent of instructor.

796R. Advanced Research. (2-4:Arr.:Arr. ea.) Prerequisite: consent of instructor.

799R. Dissertation. (Arr.) Prerequisite: Ed. 751 or equivalent.

Electrical Engineering Science

Professors: Barrett, Clegg, Humpherys, Jonsson, Losee (Chairman, 175 FELB).
Associate Professors: Bowman, Chaston, Miner, Monson, Woodbury.
Assistant Professors: Bearnson, Ward.
Instructors: Hansen, Ohran.

The Department of Electrical Engineering Science offers training in all fundamental principles necessary for a career as a modern professional electrical engineer. Creative design and innovation are emphasized as preparation for leadership in our technical society. Degrees offered are Bachelor of Science, Master of Engineering, Master of Science, and Doctor of Philosophy. The B.S. and M.Eng. curricula are fully accredited by the Engineers' Council for Professional Development (ECPD). Graduates are educationally prepared to become licensed professional engineers.

Electrical Engineering Science at BYU includes such areas as electrical engineering, electronics engineering, communication engineering, computer engineering, electrical-power engineering, and solid-state engineering. The extensive background of the faculty will prove valuable to those who wish to undertake special projects or research topics in any of these fields. Seminar work and participation in technical meetings sponsored by worldwide engineering and student organizations provide a rich beginning to a professional career.

Undergraduate course work is based on a scientific foundation provided by in-depth study of mathematics, physics, and chemistry. Through this scientific foundation and a wide scope of engineering courses and laboratories, graduates are equipped with knowledge and problem-solving techniques to assure both current competence and preparation for future developments. Students completing the undergraduate program may go on to industrial work in design, production, research, management, or related areas or to graduate academic work if University graduate school requirements are met.

Computer Studies

Several departments within BYU offer computer-related studies, and nearly all departments make some use of computers. The computer option of the Electrical Engineering Science Department is intended for those who are interested in the application of engineering principles to the formulation and realization of computer system designs. The scope ranges from overall organization to logic details and solid state electronic phenomena. A student in this option also receives a survey of computer software adequate to give proper perspective to hardware design and organization.

Students in all other electrical engineering science options also learn the use of electronic computers and the techniques of digital circuit design.

Students desiring a computer-oriented program emphasizing technology, utilization, or software should consult the Technology or Computer Science sections of this catalog.

Entrance Requirements

For the general entrance requirements of the University and the particular requirements specified by the College of Engineering Sciences and Technology see those sections of this catalog.

General Education Requirements

Engineering science students are subject to all of the general education requirements listed in this catalog, with the following exceptions and comments:

1. The biological science requirement may be reduced to 4 semester hours instead of the 6 semester hours specified.
2. Students are required to take Eng. 316 in meeting the English requirement.
3. It is especially recommended that the student take Econ. 110 and Psych. 111 in satisfying the social science group requirement.
4. Students should not attempt to complete the general education requirements early. It is of extreme importance to maintain constant progress in the technical areas because of prerequisite structure. This applies to all students, including those who expect to interrupt their schooling for missionary work or military service.

Professional Requirements

Proficiency in electrical engineering requires dedication and certain natural abilities. Only students demonstrating these qualities and showing consistent progress measured against professional standards will be retained in this program. Participation in extracurricular IEEE functions is required. A cumulative grade-point average of 2.0 (C) or better is required in mathematics, in physics, and in engineering subjects prior to registration in Elec. Eng. 311. No more than 6 hours of D credit in electrical engineering courses will be counted toward graduation. Students will be dropped from the program if they receive unsatisfactory grades: D (after the 6 hour limit), E, WE, UW, or I (unconverted) in three or more courses in the professional program or more than once in any one such course. In extenuating circumstances a student may be reinstated if, upon petition, he obtains the approval of a majority of the department faculty.

Undergraduate Seminar

Electrical engineering majors must enroll in Elec. Eng. 291R each semester except during the time they are taking Elec. Eng. 491 or 492. This undergraduate seminar will meet in the first and third Thursdays of each month at 10:00 a.m. You should consult the bulletin board, outside 459 ESTB, for the location of each meeting and the speaker scheduled.

Spring and Summer Terms

The basic four-year bachelor's degree and five-year master's degree programs are planned to utilize only the Fall and Winter semesters. Students desiring to attend school during the Spring Term as well as the Fall and Winter semesters can usually, on an accelerated schedule, complete the same bachelor's requirements in three years and the master's requirements in four. Suggested sequences of courses for this accelerated program are available from departmental advisers.

Entering freshmen who have not already completed the equivalent of Math. 110R, Precalculus Mathematics, may very profitably take this course during the summer prior to their first fall registration.

Graduate Studies

As technological knowledge increases, it becomes more and more necessary for students to extend their schooling beyond the bachelor's level. Adequate preparation for leadership in many industries is now considered to be the master's degree, and the doctorate is increasingly being sought by those in research and teaching activities. Opportunities for influential positions of leadership come more readily to those with advanced degrees, and those without are often given the more routine assignments. Thus, it is strongly recommended that students who qualify for admission to Graduate School take this opportunity to increase their worth. We also point to the advantages of doing this promptly rather than in anticipation of spreading the work over several years while working full time. There are many who fail to complete programs under such circumstances because of discouragement in the long grind, because of increased responsibilities on the job, and because of interference with opportunities for travel. The necessity to limit job responsibilities to keep up with school is a liability to be considered.

As early as the junior year, students who have a GPA of at least 2.5 and who otherwise qualify may begin work on a master's degree under the integrated master's program. Under this program, certain graduate courses may be taken before other required but nonpacing courses. Thus, requirements for bachelor's and master's degree are completed at approximately the same time, and both degrees are often awarded simultaneously.

The Master of Science degree (M.S.) includes a greater emphasis on research procedures and is recommended for students planning to continue study to the doctorate level. Course requirements are a 30-hour program beyond the bachelor's degree, including Elec. Eng. 513, 6 hours of mathematics, and a 6- to 9-hour thesis (Elec. Eng. 699).

The Master of Engineering degree (M.Eng.) allows more course work and greater design training. Course requirements are the same as for the M.S., except that a 3-hour project (Elec. Eng. 697R) and additional electives replace the thesis.

For further details on all graduate programs, see the **Graduate School Catalog.**

Requirements for Bachelor of Science Degree

Each student is required to complete the following course work for the Bachelor of Science Degree:

	Hours
Math. 112, 113, 214, 321	14
Physics 121, 122, 214, 221	10
Chem. 105, 106	8
Civ. Eng. 301, 304	6
Des. Tech. 111	2
Mech. Eng. 301	3
Elec. Eng. 100, 120, 210, 220, 221, 311, 341, 411, 431, 442, 491, 492	31
Courses from an option	20
General education requirements	42
	136

Details of the option course work are contained in the next section.

The required course work can be completed in 4 years of attendance at Fall and Winter semesters only, or in 3 years through use of Spring and Summer terms. An extremely high degree of prerequisite and corequisite structure exists among these courses. Additional prerequisites must be filled for courses within an option. Because of the many variations in possible schedules and because few classes are offered every term, each student must carefully plan his progress to avoid taking additional time. **The aid of a departmental adviser is essential in constructing this plan.** Advisers are assigned through the Electrical Engineering Science Department secretary, 459 ESTB.

Students with adequate preparation in drafting (Des. Tech. 111), health (Health 130), or American history and government (Hist. 170) may be excused from these requirements by examination. For further details see your adviser.

Options

Three basic options are offered as detailed below. Each option requires introductory course work in an area of electrical engineering. Standard options are (1) electronics, (2) computers, and (3) electrical power. Other options satisfying a particular student's needs may be submitted for prior approval by petition to the department chairman.

Computers: The computers option should be chosen by students whose interests include digital computer design, switching theory, telecommunications, or the design of digital electronic circuitry. In addition to the common courses listed above, the following courses are required:

	Hours
Comput. Sci. 132, 300	6
Elec. Eng. 224, 320	7
Technical electives	7
	20

Technical electives may be chosen from courses with computer involvement in electrical engineering, mathematics, statistics, physics, or computer science with prior approval of your adviser.

Electronics: The electronics option is designed for students whose interests include electronic circuits, radio or television communications, microwave systems, antennas, solid-state devices, integrated circuit design, and physical electronics.

	Hours
Math. 322	3
Mech. Eng. 302	3
Elec. Eng. 360, 450	7
Technical electives	7
	20

Technical electives may be chosen from upper division or graduate courses in engineering, mathematics, statistics, physics, chemistry, or computer science with prior approval of your adviser.

Power: The power option is for those interested in employment with an electric utility, with an industrial operation, with a manufacturer of electrical equipment, with electrical construction, or as an architectural or power consultant.

	Hours
Elec. Eng. 531	3
Mech. Eng. 302, 322	7
Civ. Eng. 471	3
Technical electives	7
	20

Those interested in power generation or nuclear engineering should substitute Mech. Eng. 321, 322, 412, 540 and 3 hours of technical electives in place of Mech. Eng. 301, 302, 322, and 7 hours of electives. All technical electives must receive prior approval from your adviser.

New Freshman Registration

Because of the complicated prerequisite structure and varying student needs, a long-range schedule of courses should be individually developed by each student as soon as possible. Decisions such as terms of attendance, option choice, and mission or service breaks should be at least tentatively made and planned into the schedule. Helpful scheduling guides may be secured from the department secretary in 459 ESTB. To avoid problems, this schedule should be reviewed with your adviser.

For most students first-semester registration falls into one of two categories, with mathematics background being the determining factor. At least three weeks before the registration deadline you should write to the Mathematics Department, 292 TMCB, Brigham Young University, Provo, Utah 84602, and request the Math Placement Survey. The results of this survey will suggest either that you are ready to begin in Math. 112, Analytical Geometry and Calculus, or in some prior course, usually Math. 110R: Precalculus Mathematics. We then recommend the following first-semester schedule:

Beginning in Math. 112

Math. 112	4
Physics 121	3
Elec. Eng. 100	1
Elec. Eng. 120 or Engl. 111*	3
Relig. 121	2
Physical education	½
General education	3
Elec. Eng. 291R	0
	16½

Beginning in Math. 110R

Math. 110R	2–6
Chem. 105	4
Elec. Eng. 100	1
Elec. Eng. 120 or Engl. 111*	3
Relig. 121	2
Physical education	½
General education	0–4
Elec. Eng. 291R	0
	16½

*Students whose last names begin with letters A through K should register for Engl. 111 during the Fall Semester. Others should take Elec. Eng. 120.

For answers to further questions, write to Freshman Advisement, Electrical Engineering Department, 459 ESTB, Brigham Young University, Provo, Utah 84602, or to the College of Engineering Sciences and Technology Advisement Center, 278 ESTB, Brigham Young University, Provo, Utah 84602.

New Transfer Registration

Each new transfer student's situation must be evaluated separately. Help may be received by writing or calling Transfer Advisement, Electrical Engineering Department, 459 ESTB, Brigham Young University, Provo, Utah 84602.

Typical Schedules

The following are suggested schedules for students in each of the three options. If you do not begin in Math. 112 or intend to use some Spring or Summer terms or if you are in ROTC, you should consult an adviser in preparing a program tailored to your needs.

Computer Option

First Year	F	W
Math. 112, 113	4	4
Physics 121, 122	3	3
Elec. Eng. 100, Des. Tech. 111	1	2
Elec. Eng. 120, Engl. 111	3	3

Relig. 121, 122	2	2
Physical education	½	½
Elec. Eng. 291R	0	0
General education	3	3
	16½	17½

Second Year	F	W
Math. 214, 321	3	3
Physics 214	1	
Physics 221, Comput. Sci. 132	3	3
Elec. Eng. 220, 224	3	3
Elec. Eng. 221, 210	1	3
Religion	2	2
Physical education	½	½
General education	3	3
Elec. Eng. 291R	0	0
	16½	17½

Third Year	F	W
Elec. Eng. 311, 341	4	4
Civ. Eng. 301, Engl. 316	3	3
Elec. Eng. 320, Comput. Sci. 300	4	3
Chem. 105, 106	4	4
Religion	2	2
Elec. Eng. 291R	0	0
	17	16

Fourth Year	F	W
Elec. Eng. 491, 492	½	½
Elec. Eng. 442, 411	4	3
Mech. Eng. 301	3	
Civ. Eng. 304, Elec. Eng. 431	3	4
Religion	1	1
Elective	4	3
General education	2	6
	17½	17½

Electronics Option

First Year	F	W
Math. 112, 113	4	4
Physics 121, 122	3	3
Elec. Eng. 100, Des. Tech. 111	1	2
Elec. Eng. 120, Engl. 111	3	3
Relig. 121, 122	2	2
Physical education	½	½
General education	3	3
Elec. Eng. 291R	0	0
	16½	17½

Second Year	F	W
Gen. ed.	3	4
Math. 214, 321	3	3
Physics 214	1	
Physics 221	3	
Chem. 105, 106	4	4
Elec. Eng. 221, 210	1	3
Religion	2	2
Physical education	½	½
Elec. Eng. 291R	0	0
	17½	16½

Third Year	F	W
Math. 322, Elec. Eng. 360	3	4
Civ. Eng. 301, 304	3	3
Elec. Eng. 311, 341	4	4
Religion	2	2
Engl. 316, General education	3	3
Elec. Eng. 291R	0	0
General education	2	
	17	16

Fourth Year	F	W
Elec. Eng. 431, 450	4	3
Mech. Eng. 301, 302	3	3
Elec. Eng. 442, 411	4	3
Elec. Eng. 491, 492	½	½
Religion	1	1
Elective	3	4
General education	2	3
	17½	17½

Power Option

First Year	F	W
Math. 112, 113	4	4
Physics 121, 122	3	3
Elec. Eng. 100, Des. Tech. 111	1	2
Elec. Eng. 120, Engl. 111	3	3
Relig. 121, 122	2	2
Physical education	½	½
General education	3	3
Elec. Eng. 291R	0	0
	16½	17½

Second Year	F	W
Math. 214, 321	3	3
Physics 221	3	
Chem. 105, 106	4	4
Elec. Eng. 221, 210	1	3
Religion	2	2
Physical education	½	½
General education	3	4
Elec. Eng. 291R	0	0
Physics 214	1	
	17½	16½

Third Year	F	W
Engl. 316, Elec. Eng. 431	3	4
Civ. Eng. 301, 304	3	3
Elec. Eng. 311, 341	4	4
Mech. Eng. 321, 322	3	4
Religion	2	2
Elec. Eng. 291R	0	0
General education	2	
	17	17

Fourth Year	F	W
Elec. Eng. 220	3	
Elec. Eng. 491, 492	½	½
Elec. Eng. 531, Civ. Eng. 471	3	3
Elec. Eng. 442, 411	4	3
Religion		2
Mech. Eng. 412, 540	3½	3½
Elective		3
General education	3	2
	17	17

Courses

100. Introduction to Electrical Engineering. (1:1:0)
Introduction to the fields and profession of electrical engineering. Study of elementary engineering problems. Slide rule techniques.

120. Introduction to Computer Engineering. (3:3:0)
Types of computers, their basic organization, and means by which information is processed and stored.

210. Introduction to Electric Circuits. (3:3:0) Prerequisites: Elec. Eng. 221; Physics 122 or equivalent; completion of or concurrent registration in Math 321.
Introduction to the solution of electrical circuit problems.

220. (Comput. Sci.—Elec. Eng.) Digital Computer Electronics. (3:2:3) Prerequisites: Physics 122, Elec. Eng. 120.
Basic elements and technologies used to fabricate digital computers, with laboratory experience in construction of simple computer subsystems.

221. Numerical Solutions in Electrical Engineering. (1:1:0) Prerequisite: completion of or concurrent registration in Math. 112.

Beginning FORTRAN programming and the numerical solutions of elementary electrical engineering problems.

224. (Comput. Sci.—Elec. Eng.) Digital Computer Sequential Circuits Design. (3:2:3) Prerequisite: Elec. Eng. 220.
Asynchronous and synchronous sequential circuit analysis and synthesis, including flip-flop excitation functions, state assignments, and race conditions.

291R. Undergraduate Seminar. (0:½:0)

301. Elements of Electrical Engineering. (2:2:0) Home Study also. Prerequisites: Physics 122, Math. 321.
For students not majoring in electrical engineering. Study of linear electrical circuits.

302. Elements of Electrical Engineering. (2:2:0) Prerequisite: Elec. Eng. 301 or 311.
Study of polyphase circuits, magnetic circuits, DC and AC machines, and transformers.

303. Elements of Electrical Engineering Laboratory. (1:0:3) Prerequisite: concurrent registration in Elec. Eng. 302.
A series of energy conversion experiments designed to parallel Elec. Eng. 302.

304. Elements of Electrical Engineering. (2:2:0) Prerequisite: Elec. Eng. 301.
Study of solid state and vacuum tube circuits.

305. Elements of Electrical Engineering Laboratory. (1:0:3) Prerequisite: concurrent registration in Elec. Eng. 304.
A series of laboratory experiments related to solid state devices, vacuum tubes, and instrumentation circuits designed to parallel Elec. Eng. 304.

311. Circuit Analysis. (4:3:3) Prerequisite: Elec. Eng. 210.
Analysis of linear and nonlinear electrical circuits.

320. Computer Organization and Architectural Design. (4:3:3) Prerequisites: Elec. Eng. 224, Comput. Sci. 132.
Arithmetic techniques, overall organization, memory systems, channels, peripheral devices, controllers, comparison of contrasting architectures, multiprocessing, multiprogramming, paging, segmentation, and virtual memory.

341. Electronic Circuits and Devices I. (4:3:3) Prerequisites: Elec. Eng. 311.
Physical characteristics of electronic devices and components.

360. Introductory Electromagnetics. (4:4:0) Prerequisite: Math. 322.
Static and dynamic electromagnetic fields; applications to transmission lines, microwave components, and electromagnetic structures.

411. Feedback Concepts. (3:3:0) Prerequisites: Math. 321; Civ. Eng. 304; Elec. Eng. 302 (or 431), 304 (or 341).

431. Electrical Energy Conversion. (4:3:3) Prerequisite: Elec. Eng. 311.
Magnetic circuits, transformers, and energy conversion principles.

442. Electronic Circuits and Devices II. (4:3:3) Prerequisite: Elec. Eng. 341.

450. Electrical Properties of Materials. (3:2:3) Prerequisites: Elec. Eng. 360, 442.
Electrical properties of crystalline solids.

491, 492. Senior Seminar. (½:2:0 ea.) Prerequisite: senior standing in electrical engineering.

513. Linear Systems. (3:3:0) Prerequisite: graduate standing or consent of instructor.
State-space and transform techniques in the analysis of linear systems.

521. Computer Arithmetic Techniques and Microprogramming. (3:3:0) Prerequisite: Elec. Eng. 320.

522R. Special Topics in Computer Systems. (1-3:Arr.:Arr.) Prerequisite: consent of instructor.

523. Digital Computer Design. (3:3:0) Prerequisite: Elec. Eng. 210.
The operation and logical design of digital computers.

524. Switching Theory. (3:3:0) Prerequisite: Elec. Eng. 523.
Analysis and synthesis of combinatorial and sequential switching circuits; their use in computation.

525. Advanced Switching and Logic Theory. (3:3:0) Prerequisite: Elec. Eng. 320.
Fault diagnosis, multi-ports, advanced algorithms, computer-aided digital system design, and iterative networks.

526. Computer Communication Systems. (3:3:0) Prerequisites: Elec. Eng. 320, 442.
Computer networks, I/O handling, digital data transmission techniques, synchronization, error coding, feedback communications, decision theory, likelihood, correlation, and orthogonal signals.

529. Computer Graphics and Real-Time Programming. (3:3:0) Prerequisite: Elec. Eng. 320.
Graphic input/output systems for digital computers; on-line and realtime hybrid systems.

531. Power Systems Analysis. (3:3:0) Prerequisite: Elec. Eng. 302 or completion of or concurrent registration in Elec. Eng. 431.
Polyphase circuits, transmission line constants, power system representation, generalized circuit constants, symmetrical components, and fault studies.

532R. Special Topics in Power Systems. (3:3:0) Prerequisite: Elec. Eng. 531.

533. Power Machinery and Equipment. (3:3:0) Prerequisite: Elec. Eng. 302 or 431.
Transformers; synchronous, induction, and DC machines; other power system devices.

537R. Advanced Control Machinery Laboratory. (1:0:3) Prerequisite. Elec. Eng. 411.
Experiments with electrical machinery, control systems, and power distribution systems.

541. Switching, Timing, and Pulse Circuits. (4:3:3) Prerequisite: Elec. Eng. 341.
Passive and active electronic circuits, with emphasis on nonlinear modes of operation.

542R. Special Topics in Electronics. (1-3:1-3:0) Prerequisite: consent of instructor.

550, 551. Physical Electronics. (3:3:0 ea.) Prerequisites: Physics 221 and senior or graduate standing. Recommended: Elec. Eng. 450.
Theory and applications of solid state electronic devices, including Gunn and avalanche diodes, lasers, and magnetic and accoustical devices.

552R. Semiconductor Laboratory. (1-2:0:3-6 ea.) Prerequisite: completion of or concurrent registration in Elec. Eng. 450 or 550.
Experimental investigation of semiconductor materials, including basic measurements and construction of electronic devices.

560. Microwave Engineering. (4:3:3) Prerequisite: Elec. Eng. 360.
Application of electromagnetic field theory to microwave components and systems.

561. Communication Circuits. (4:3:3) Prerequisites: Elec. Eng. 360, 442.
Circuits and RF techniques used in communication systems.

593R. Special Topics in Electrical Engineering. (3:3:0 ea.) Prerequisite: consent of instructor.

Content varies from year to year. Recent developments in electrical engineering.

598R. Special Problems. (1-2:Arr.:Arr. ea.) Prerequisite: consent of instructor.

623. Advanced Digital Computers. (3:3:0) Prerequisites: Elec. Eng. 523, Comput. Sci. 232, or equivalent.

661. Advanced Electromagnetic Fields. (3:3:0) Prerequisite: Elec. Eng. 560.

663. Antenna Theory. (3:3:0) Prerequisite: Elec. Eng. 360.

664, 665. Communication Theory. (3:3:0 ea.) Prerequisite: graduate standing or consent of instructor.

697R. Master of Engineering Project. (3:Arr.:Arr. ea.) Prerequisites: graduate standing and consent of major professor.

698R. Readings and Seminar. (1:1:0 ea.) Prerequisite: graduate standing.

699. Thesis for Master's Degree. (6-9:Arr.:Arr.) Prerequisites: graduate standing and consent of major professor.

791R. Seminar for Doctoral Students. (1:1:0 ea.)

794R. Selected Topics in Electrical Engineering. (1-3:Arr.: Arr.)

797R. Research for Doctoral Students. (Arr. ea.)

799. Dissertation for Doctoral Students. (Arr.)

English

Professors: Cheney (emeritus), B. Clark, M. Clark, Cox, Craig, Ellsworth, Farnsworth, Gassman, Hart, Jacobs, King, Larson, Monson, R. Thomas, Thomson, West, Wood, Young (emeritus).

Associate Professors: Blanch, Brady, Calder, Cracroft (Chairman, 246 JKBA), Evans, Grass (emeritus), J. B. Harris, J. S. Harris, Horton, Lambert, McKellar, McKendrick, Olson, Tanner (emeritus), Tate, Thayer, J. Thomas, Waterstradt, Williams, Wilson.

Assistant Professors: Alder, Arnold, Ballantyne, Bell, B. Best, Esplin, Geary, Hayes, Howe, Hunsaker, Luthy, Mitchell, Morrell (emeritus), Nielsen, Ream, Ridenhour, Wahlquist, Wight, Walker.

Instructors: Bennion, L. Best, Hendrickson, McKay (emeritus), Norton, Smith, C. Taylor (emeritus).

The English Department provides a wide variety of courses of value and interest to the University community as a whole as well as to those who wish to pursue a major or minor in English language and literature. To help the student meet his general education requirements, the department offers both a composition program designed to improve his language and writing skills and several sophomore-level literature courses designed to provide vital experiences within the humanistic tradition.

The English major or minor is a program designed to provide a significant encounter with the humanizing forces of language and literature. As an important focus in the tradition of the liberal arts, the study of English should produce a graduate more conscious of himself, his nature, his society, his values, and his tradition.

The Bachelor of Arts degree in English also prepares the student to pursue numerous career possibilities. Many English majors and minors go into teaching in the public schools, and others go on to graduate school to prepare for college and university teaching. However, an ever-increasing number of alternative paths are opening up to the English major or minor. Schools of law and graduate schools of business administration frequently encourage their potential candidates for admission to pursue the liberal arts background and the analytical and writing abilities that an English major or minor develops. Many business firms and government agencies seek candidates for their individual training programs from among graduates with a liberal arts degree such as English. Library science and the many fields of modern communication and publication offer additional career possibilities for the well-prepared English major.

Students interested in English as a major for pre-law, pre-MBA, pre-library science, or other such professional programs should consult with advisers of the English Department who will recommend programs most suitable to their needs.

English Composition

Verdon W. Ballantyne, Coordinator

All students are required to complete 6 hours of composition for graduation. Freshmen whose surnames begin with the letters A through K take English 111 during the Fall Semester; freshmen whose surnames begin with the letters L through Z take the course during the Winter Semester. (Foreign students clear with the International Student Adviser, and advanced placement students check with the Advanced Placement Officer before registering.)

After completing the freshman course in writing, students take Engl. 212, 215, or 251 as sophomores or 316 as juniors to fulfill the composition requirement. Because colleges and departments will designate which course they wish their majors to take, students should carefully check departmental requirements prior to registration. The English Department will schedule enough sections each semester to accommodate one-half of the sophomore and junior classes involved in each course. Students should therefore plan to register on the basis of alphabetical division, just as they do for Engl. 111. Transfer students must check with the Coordinator of English Composition for transfer credit in composition.

Requirements for an English Major

A major in English requires 35 credit hours in English beyond the 6-hour general education composition requirement. In fulfilling the remainder of the University's general education program, the English major must complete the foreign language option, i.e., 6 to 8 hours in a foreign language beyond the 101 level.

The English Department awards the Bachelor of Arts degree upon satisfactory completion of University and departmental requirements for graduation. Usually, no D credit in English may be applied toward the completion of requirements for the English major.

The English Department requires its majors to take Engl. 251 as the second course in the composition sequence. Students deciding on an English major after completing 6 hours of composition credit or transfer students transferring 6 hours of composition credit should take Engl. 251 upon entering the major program. Such students may count Engl. 251 as part of their 35-hour requirement. All English majors must complete the following courses and course options:

A. **English Literature before 1800:**
Engl. 301 (4) plus one course from Engl. 371, 372, 373
or
Two courses (6) from Engl. 371, 372, 373 plus Engl. 382 (3)

B. **English Literature after 1800:**
Engl. 302 (4) plus one course from Engl. 374, 375, 376
or
Two courses (6) from Engl. 374, 375, 376

C. **American Literature:**
Two courses (6) from Engl. 361, 362, 363

D. **Languages:**
Engl. 325 (3) required of all majors.

Majors should take Engl. 301, 302, and at least one of the American literature period courses (Engl. 361, 362, 363) during the first three semesters following completion of Engl. 251. These requirements must be met by students desiring to graduate in 1977.

The major should take sufficient additional courses from the English courses numbered in the 300, 400, and 500 series to bring his total in English to at least 35 hours. Most English courses in the 100 and 200 series are service or general education courses, and with the exception of Engl. 218 and—in certain cases, as specified above—Engl. 251, courses in the 100 and 200 series will not count toward a major. Courses that count as education courses for teacher training programs will not count toward a major; these courses are Engl. 377, 422, and 479.

There is a wide flexibility in the English major program, which allows the student to pursue his own interests. The student should consult with his departmental adviser in setting up a program that will help him best meet his educational and professional goals. A student would probably be well advised, however, not to project too narrow a program. The department suggests that every student's program should cover historical surveys in both English and American literature as well as courses in language, writing, and genre.

The department provides a minimum reading list of literature which the English major should obtain from the English office and use as a guide to his program and independent study. During his senior year, he may elect Engl. 490 (Senior Seminar), a course based on the reading list and designed to help the student correlate and assimilate his study of literature.

During his senior year—preferably during his last semester—the candidate for graduation must pass a standard examination on English and American literature, language and writing. The examination grade will be recorded on the student's transcript and will be consulted in connection with job interviews, letters of recommendation, departmental awards, and other such matters. A score equivalent to a B- is required for admission to graduate work in English, and the examination score becomes a part of the student's record.

Requirements for a Teaching Major in English

The requirements for a teaching major in English are the same as those for the English major listed above, except that the student completing a teaching major must complete Engl. 321 and at least one of the following English language courses: Engl. 322 or 325 or 421. The teaching major must also complete the professional education courses required for teacher certification as outlined by the College of Education. The teaching major in English registers for Engl. 377 and 479 in place of Ed. 377 and 479 in the sequence of professional courses outlined by the College of Education.

Supporting Courses and Minor Programs for English Majors

An English major who is not a teaching major need not complete a regular departmental minor. By carefully choosing courses to fill certain general education groups and by electing courses from several departments that are complementary to his major, a student may develop a program more useful to him than by pursuing a traditional minor. The following are some of the complementary courses strongly recommended by the English Department: Classical Civilization 341; Hist. 120, 121, and 335; Hum. 201 and 202; Phil. 110 and 222; Theatre 121 and 325; and upper-division courses in comparative literature.

If a student wishes to complete a minor and have it recorded on his records, he may select a minor from any department in the College of Humanities, the College of Social Sciences, or the College of Fine Arts and Communications, or in philosophy or library science. A minor from any other department should be approved by the chairman of the English Department.

English teaching majors must complete a teaching minor consisting of 16 or more hours of approved courses in a subject related to English and approved by the English Department and the College of Education. The English Department recommends the following as teaching minors: art, French, geography, German, history, journalism, Latin, political science, psychology, Russian, sociology, Spanish, speech-drama, business education, instructional media. Any teaching minor other than these should have the approval of the chairman of the English Department. For further information, see Subject-Matter Preparation of Secondary School Teachers in the Department of Education section of this catalog.

The requirements for a teaching minor in English are the following: Engl. 301, 302, 303, 321; 322 or 325 or 421; and at least one upper-division elective to total a minimum of 20 hours. (An exception to the upper-division requirement is Engl. 218.) Engl. 251, a prerequisite for these courses, may count toward the 20 hours if not taken to fill the University English composition requirement. All teaching minors must also take Engl. 377.

A nonteaching minor requires a minimum of 14 hours beyond the University English composition requirement. At least 6 of the 14 hours required must be upper-division. In selecting courses for a minor, a student should consult with an adviser in his major department and, if he desires, with a member of the English Department.

English for Nonnative Speakers

For placement of, and courses provided for, students whose native language is not English, see information under Department of Linguistics.

Graduate Study

The Department of English offers Master of Arts degrees in American literature, English literature, and English language, and Doctor of Philosophy degrees in American literature and in English literature. For detailed information regarding the requirements for an advanced degree, see the **Graduate School Catalog.**

Courses

15. Remedial English for Juniors. (0:3 for ½ semester:0) Home Study also. G. Bennion

Intensive review of the essentials of composition and preparation for the Junior English Proficiency Examination.

111. Composition and Reading. (3:3:0) Home Study also.

Course in reading and writing designed for the development of effective writing, critical awareness of the resources of language, and rapid and critical reading. Review of grammar; readings; weekly themes.

212. Composition and Literature. (3:3:0) Home Study also. Prerequisite: Engl. 111.

Continuation of Engl. 111. Study of diction, tone, and style in both exposition and literature. Long library paper.

215. Exposition and Report Writing. (3:3:0) Prerequisite: Engl. 111.

Continuation of Engl. 111. Study of techniques for clarity and precision in factual writing. Long library paped.

218R. Creative Writing. (2:2:0) Home Study also (m) Prerequisite: Engl. 212, 215, 251, or 316. Bell

Composition course designed to develop expressive skill and power through writing short stories, poems, dramas, and informal essays.

225. Vocabulary Building. (2:2:0) Home Study also. (m) Horton, Wahlquist

Service course for developing an effective vocabulary through study of prefixes, suffixes, and roots.

250R. Literature. (3:3:0) Home Study also. (G-HA m)

Considers various literary themes (mystery, science fiction), forms (novel, poetry, short story), and authors

(Shakespeere, etc.). Sections vary according to instructors. For non-English majors.

251. Fundamentals: Writing about Literature. (3:3:0) Home Study also. Prerequisite: Engl. 111. B. Best
Continuation of Engl. 111. Basic course in literary appreciation and criticism, literary terminology, and interpretive writing. Long library paper. Required of all English majors and minors and recommended for other students whose majors or minors focus on literature.

260. Vital Themes in American Literature. (3:3:0) Home Study also. (G-HA m) Lambert
Selected readings in American literature which raise issues vital in the life of every human being. Does not count toward the English teaching minor.

270. Masterpieces of English Literature. (3:3:0) Home Study also. (G-HA m) Hunsaker
Selected readings in English literature from medieval times to the present. Does not count toward the English teaching minor.

301. Early Masters of English Literature. (4:4:0) (G-HA m) Prerequisite: Engl. 251. Waterstradt
A critical study of major works of major English authors from the beginning through the eighteenth century; interpretive composition emphasized.

302. Later Masters of English Literature. (4:4:0) (G-HA m) Prerequisite: Engl. 251. Geary
A critical study of major works of major English authors since the eighteenth century; interpretive composition emphasized.

303. Masters of American Literature. (4:4:0) (G-HA m) Prerequisite: Engl. 251. Ellsworth
A critical study of major works of major American authors; interpretive composition emphasized.

315. Advanced Expository Writing. (2:2:0) (m) Prerequisite: Engl. 212, 215, 251, or 316. Monson
Advanced composition course designed to extend and refine skills in factual writing.

316. Technical Writing. (3:3:0) Home Study also (m) Prerequisite: Engl. 111. J. S. Harris
Composition and reading course designed to develop accuracy and skill in writing scientific pamphlets, articles, reports, and memoranda.

318R. Writing of Fiction. (2:2:0) Home Study also. (m) Prerequisite: Engl. 218 or consent of instructor. Thayer
Special development in the creation of style and technique in prose fiction; the discipline and practice of the writer; individual consultation.

319R. Writing of Poetry. (2:2:0) Home Study also. (m) Prerequisite: Engl. 218 or consent of instructor. Larson
Special development in the creation of style and technique in poetry; the discipline and practice of the poet; individual consultation.

321. Study in English Grammars. (3:3:0) Home Study also. (m) Prerequisite: Engl. 111. Alder, Cox, Norton, Luthy
Modern grammars of English—descriptive, structural, and transformational—with study of the supporting linguistic principles. Required for English majors and English teaching minors.

322. Modern American Usage. (3:3:0) Home Study also. (m) Prerequisite: Engl. 111. Alder, Cox, Hayes, Norton
A study of the current conventions and effective use of American English.

325. Introduction to the English Language. (3:3:0) (m) Prerequisite: Engl. 111. Alder, Luthy
The study of the English language, including its phonology, morphology, and syntax, and their application to the problems of English language learning.

326. Semantics. (2:2:0) (m) Prerequisite: Engl. 212, 215, 251, or 316.
General semantics. Particular focus on the way in which words influence thought and behavior.

332. The Early English Novel. (3:3:0) Home Study also. (G-HA m) Brady, Gessman
English prose fiction from the beginnings to the midnineteenth century, with emphasis on Defoe, Richardson, Fielding, Smollett, Sterne, Scott, Austen, Trollope, Thackeray, the Brontës, and Dickens.

333. The Later English Novel. (3:3:0) Home Study also. (G-HA m) Brady, B. Clark
The English novel from the midnineteenth century to 1950, with emphasis on George Eliot, Meredith, Hardy, Conrad, Bennett, Galsworthy, Lawrence, Maugham, Joyce, Woolf, and Huxley.

335. The Nineteenth-Century American Novel. (3:3:0) Home Study also. (G-HA m) Jacobs, Williams
Emphasis on Cooper, Hawthorne, Melville, Twain, Howells, and James.

336. The Twentieth-Century American Novel. (3:3:0) Home Study also. (G-HA m) M. Clark, McKellar
Emphasis on Dreiser, Cather, Lewis, Hemingway, Faulkner, Steinbeck, Wolfe, Fitzgerald, Dos Passos, and Warren.

337. Contemporary Fiction. (3:3:0) (G-HA m) Arnold, M. Clark, Evans
Trends, techniques, and themes in English and American fiction since World War II, including the works of Ellison, Camus, Kazantzakis, O'Connor, Malamud, Bellow, Mailer, and Updike.

338. (Engl.-Hum.) European Novel. (3:3:0) (G-HA m) Blanch, M. Clark
The works of the principal European novelists, including Cervantes, Flaubert, Zola, Turgenev, Dostoevsky, Tolstoy, Mann, Kafka, and others, in English translation.

341. English Drama. (3:3:0) (G-HA m) Craig, Wood, J. Thomas
The English drama (exclusive of Shakespeare) from the beginning to midnineteenth century, with emphasis on dramatic modes and forms.

343. Modern English and American Drama. (3:3:0) (G-HA m) Craig, Ridenhour, Waterstradt
Major English and American dramatists since 1890.

350. The Bible as Literature. (2:2:0) Home Study also. (G-HA m) Ellsworth, Olson

351. The Criticism and Appreciation of Literature. (3:3:0) (m) M. Clark, Hart, Larson
Critical theories and standards of value. Required for students who intend to do graduate study in English at BYU.

355. (Engl.-Hum.) World Classics I. (3:3:0) (G-HA m) Britsch, Craig, Tate
Greek and Roman epic and drama and European classics of the Middle Ages, with emphasis on Homer, Aeschylus, Sophocles, Euripides, Virgil, and Dante.

356. (Engl.-Hum.) World Classics II. (3:3:0) (G-HA m) Thomson
European masterpieces of neoclassicism, romanticism, realism, naturalism, and symbolism in translation.

359. The Short Story. (2:2:0) Home Study also. (G-HA m)
Critical study of selected great short stories—American, English, and European—with emphasis on twentieth-century stories.

361. Early American Literature. (3:3:0) (G-HA m) Jacobs, Williams, Thomson
An intensive study of American writers from the beginnings to the mid-nineteenth century.

362. Later Nineteenth-Century American Literature. (3:3:0) (G-HA m) Ellsworth, Jacobs, Thomson
An intensive study of American writers from the midnineteenth century to the end of the century.

363. American Literature from 1914 to Midcentury. (3:3:0) (G-HA m) M. Clark, Cracroft

An intensive study of American writers from World War I to midcentury.

364. The Literature of the American West. (2:2:0) (G-HA m) Prerequisite: Engl. 212, 215, 251, or 316. Cracroft, Lambert

A critical study of important literature that utilizes frontier and western situations. Focuses on the special problems of writing about the West.

365. American Ethnic Literature. (2:2:0) (G-HA m) Jacobs

Study of writers representative of various ethnic groups in relation to their American settings and contemporaries.

366. Modern Poetry. (2:2:0) Home Study also. (G-HA m) Hart, Larson

Major English and American poets of the twentieth century.

368. Literature of the Latter-day Saints. (2:2:0) (G-HA) Cracroft, Lambert

A literary study of journals, letters, sermons, short stories, novels, poetry, and drama arising out of the Mormon experience from Joseph Smith to the present.

371. English Literature to 1500: The Medieval Period. (3:3:0) (G-HA m) McKendrick

Emphasis on relationships to other early European literature.

372. English Literature from 1500 to 1660: The Renaissance Period. (3:3:0) (G-HA m) Larson, J. Thomas, Wood

English drama, poetry, and prose of the Renaissance period including Milton but excluding Shakespeare.

373. English Literature from 1660 to 1780: The Classical Period. (3:3:0) (G-HA m) Craig, Gessman, Hart

English literature from the Restoration through the Age of Reason to the beginnings of Romanticism, including Defoe, Swift, Fielding, Dryden, Pope, and Johnson.

374. English Literature from 1780 to 1832: The Romantic Period. (3:3:0) Home Study also. (G-HA m) B. Clark, J. B. Harris

Includes the words of Burns, Blake, Wordsworth, Coleridge, Scott, Lamb, Byron, Shelley, Keats, and the Brontës.

375. English Literature from 1832 to 1890: The Victorian Period. (3:3:0) (G-HA m) Brady, B. Clark, Farnsworth

The middle and later nineteenth century, including works of Carlyle, Ruskin, Tennyson, Browning, Arnold, Dickens, Thackeray, George Eliot, the Rossettis, Fitzgerald, Morris, Swinburne, and Meredith.

376. English Literature from 1890 to 1950. (3:3:0) (G-HA m) Brady, Evans, Larson

English literature from the aesthetic movement to the end of World War II, including Hardy, Housman, Shaw, Yeats, Conrad, Lawrence, Joyce, Galsworthy, Mansfield, and the Huxleys.

377. Secondary Teaching Procedures. (3:3:0) Prerequisites: Engl. 251, 321, Ed. 301. J. B. Harris, West

For course description see Ed. 377. For English teaching majors and minors. Prerequisite for Engl. 479.

381. Chaucer. (3:3:0) (G-HA m) McKendrick

382. Shakespeare. (3:3:0) (G-HA m) B. Clark, Farnsworth, Hart

From six to eight major plays studied intensively.

383. Milton. (2:2:0) (G-HA m) Tate

391. Studies in Folklore. (3:3:0) (G-HA m) Wilson

Content, scope, and genres of folklore; approaches to folklore, including fieldwork; folklore of both literate and nonliterate peoples.

392. American Folklore. (3:3:0) (G-HA) Prerequisite: Engl. 111 or equivalent. Wilson

A study of American folk art and literature and the historical and cultural circumstances from which they developed.

420. Literature for Adolescents. (2:2:0) Home Study also. (m) Hayes

Critical examination of literature written for adolescents and of effective methods of teaching literature in the secondary schools. Intended especially for English teaching majors and minors.

421. History of the English Language. (3:3:0) (m) Cox, McKendrick

Descriptive study of the English language in the various stages of its development, with background of related historical events. Required for students who intend to do graduate study in English at BYU.

422. English Language Arts for Elementary Teachers. (3:3:0) (m) Prerequisite: Engl. 212, 215, 251, or 316. Hayes, Norton

History of the English language; approaches to English usage; and modern developments in grammar, especially transformational grammar.

423. Teaching Composition. (2:2:0) Hayes, Craig

Principles of rhetoric and linguistics as they apply to the teaching of composition on the high school and college levels.

479. Secondary Student Teaching. (4-8:1:20-40) Prerequisite: Engl. 377. Calder, McKendrick, West

For course description and fee, see Ed. 479.

490. Senior Seminar for English Majors. (2:2:0) M. Clark

495. Individual Readings. (1-3:2-8:0)

Directed reading for majors and for students on foreign tours. Available only through approval of adviser and department chairman.

500R. Eminent American Writers. (1-3:1-3:0 ea.)

Different writers are treated each semester in this series.

510R. Eminent English Writers. (1-3:1-3:0 ea.)

Different writers are treated each semester in this series.

518R. Advanced Creative Writing. (2:2:0 ea.) Prerequisite: Engl. 318, 319, or consent of instructor. Larson

A seminar in the writing of fiction, poetry, drama, and the essay; individual consideration of manuscripts; professional orientation. May be repeated for credit with the consent of the instructor.

520R. Studies in Theme and Form. (2-3:2-3:0 ea.)

An intensive study of limited literary topics (the theory of myth, Gothic fiction, Utopian literature, tragic and comic modes, etc.). Varies according to instructor.

529. Structure of Modern English. (3:3:0) Prerequisites: Engl. 321; Ling. 325; or consent of instructor. Luthy, Cox

Application of the methods of linguistic science to the description of the phonology, morphology, and syntax of modern English.

615. Bibliography and Methods of Research. (2:2:0) Gessman, J. Thomas

621R. Problems in the English Language. (3:3:0) Prerequisite: Engl. 421. Cox, McKendrick

624. Old English. (3:3:0) McKendrick

625. Beowulf. (2:2:0) Prerequisite: Engl. 624. McKendrick

626. Middle English. (3:3:0) McKendrick

631. The English Novel. (3:3:0) Prerequisite: Engl. 332, 333, or consent of instructor. Brady, B. Clark, Gassman

635. The American Novel. (3:3:0) Blanch, M. Clark, Jacobs

641. The English Drama. (3:3:0) Craig

650. Literary Criticism. (3:3:0) Prerequisite: Engl. 351 or equivalent. M. Clark, Hart, Larson

651R. Studies in Poetry. (3:3:0) Hart, Larson

652R. Studies in Prose Nonfiction. (3:3:0) Farnsworth, Hart, J. Thomas, Thomson

661. Colonialism and Puritanism in American Literature. (3:3:0) Prerequisite: Engl. 361 or consent of instructor. Jacobs, Thomson, Williams

662. Romanticism in American Literature. (3:3:0) Prerequisite: Engl. 361 or consent of instructor. Ellsworth, Jacobs, Thomson

663A,B,C,D,E. Studies in Regional American Literature. (3:3:0) (m) Prerequisite: a general background in American literature. Cracroft, Jacobs, Lambert, Thomson

664. Realism and Naturalism in American Literature. (3:3:0) Prerequisite: Engl. 362 or consent of instructor. M. Clark, Jacobs, Lambert

666. American Literature, 1900-1950. (3:3:0) Prerequisite: at least one course in modern American literature. M. Clark, Evans, Larson

667. Folklore. (2:2:0) Prerequisite: Engl. 391 or consent of instructor. Wilson

669. Teaching English in the Secondary Schools. (2:2:0) Prerequisite: Engl. 377 or consent of instructor. West

671. The Medieval Period in English Literature. (2:2:0) McKendrick

672. The Renaissance in English Literature. (3:3:0) Prerequisite: Engl. 372 or consent of instructor. Larson, J. Thomas, Wood

673. Classicism in English Literature. (3:3:0) Prerequisite: Engl. 373 or consent of instructor. Gassman, Hart

674. Romanticism in English Literature. (3:3:0) Prerequisite: Engl. 374 or consent of instructor. B. Clark, J. B. Harris

675. The Victorian Age in English Literature. (3:3:0) Prerequisite: Engl. 375 or consent of instructor. Brady, B. Clark, Farnsworth

676. British Literature, 1900-1950. (3:3:0) Prerequisite: at least one course in modern British literature. Hart, Larson

680. Contemporary Literature. (3:3:0) Prerequisite: at least one course in twentieth-century literature or consent of instructor. M. Clark, Hart, Larson

682. Problems in Shakespearean Scholarship and Criticism. (3:3:0) Prerequisite: Engl. 382, 582, or consent of instructor. Farnsworth, Hart

695. Individual Readings in English. (1-2:Arr.:0)

699. Thesis for Master's Degree.* (Arr.)

728R. Studies in Rhetoric and Style. (3:3:0 ea.)

799. Dissertation for the Ph.D. Degree.* (Arr.) Prerequisite: approval of the candidate's chairman.

*With reference to continuous registration for this course, see the current **Graduate School Catalog.**

European Studies

Coordinator: Edwin B. Morrell (110 FOB)

Faculty Committee: Ed Morrell; Doug Tobler—Committee Chairman (111 FOB); Howard Barnes—Business; Dwight Israelson—Economics; Todd Britsch—English, Humanities and Comparative Literature; David Dalton—Fine Arts; Gary Lambert—French and Italian; Dale Stevens—Geography; Alan Keele—Germanic and Scandinavian; Blair Holmes—History; Mel Mabey—Political Science; Tom Rogers—Russian; Pete Ashworth—Spanish.

European Studies is designed to prepare students for careers and advanced study which require a broad understanding of modern and contemporary Europe. It offers the breadth of related interdepartmental study in combination with the depth of training usually taken in one department. The program offers the B.A. degree for students contemplating careers in teaching, academic research, law, business, government service, etc.

Students in the European Studies Program usually combine a major in a regular academic discipline with a broader study of European culture, history, literature, politics, geography, economics, etc. They also acquire a working competency in one (or more) of the languages of Europe: French, German, Italian, Russian, a Scandinavian language, and Spanish. If desired, a single country or area of specialization within the program may be designated, such as European Studies—Russia.

Students may enter the program by consulting with the coordinator and should register each semester thereafter under his direction.

Requirements for a Major

A total of 28 hours (in addition to 12 hours of French, German, Italian, Russian, Scandinavian, or Spanish language instruction, which is the B.A. degree language-option requirement) divided as follows:

1. Core courses, starred in the list below, from three fields outside the departmental major . .. . 14 hrs.
2. Elective courses, any in the list below outside the departmental major, including for non-language majors an additional seven hours (making a total of 19) in their language and literature of emphasis .. 14 hrs.

Requirements for a Minor

A total of 17 hours (in addition to a regular major and 12 hours of one of the listed European languages, equivalent to the bachelor's degree requirement) divided as follows:

1. Core courses (starred) chosen from two fields outside the departmental major . .. . 12 hrs.
2. Elective courses, including two additional hours of language study . ... 5 hrs.

List of Courses

Art and Design
- 406 (2) Renaissance Art
- 407 (2) Northern Renaissance
- 408 (2) Baroque Art
- *411 (2) Nineteenth-Century European Art
- *412 (2) Contemporary Art

Economics
- 315 (3) History of Economic Thought
- 335 (3) Economic Problems of Selected Areas (Soviet Union, Eastern Europe, Western Europe)
- *341 (3) Comparative Economic Systems
- 358 (3) International Trade and Finance
- 535R (3) Economic Problems of Selected Areas (Soviet Union, Eastern Europe, Western Europe)
- *541 (3) Advanced Comparative Economic Systems
- 595 (1-3) Lectures in Economics (European)

English
- 270 (3) Masterpieces of English Literature

301 (4) Early Masters of English Literature
302 (4) Later Masters of English Literature
332 (3) The English Novel from Defoe Through Dickens
333 (3) The English Novel from Eliot to 1950
341 (3) English Drama
371 (3) English Literature to 1500: The Medieval Period
372 (3) English Literature from 1500 to 1660: The Renaissance Period
373 (3) English Literature from 1660 to 1780: The Classical Period
374 (3) English Literature from 1780 to 1832: The Romantic Period
*375 (3) English Literature from 1832 to 1890: The Victorian Period
*376 (3) English Literature from 1890 to 1950
381 (3) Chaucer
382 (3) Shakespeare
383 (2) Milton
421 (3) History of the English Language
510R (1-3 ea.) Eminent English Writers

French
440 (4) Historical Survey of French Literature
*441, 442 (3 ea.) Survey of French Literature and Culture
445 (3) Introduction to French Civilization
446 (3) French Poetry
447 (3) French Dramatic Literature
448 (3) French Literary Prose

Geography
120 (3) Geography and World Affairs
301 (2) Introduction to Cultural Geography (Section on Europe)
441 (3) Political Geography
*460 (3) Europe
*465 (3) USSR and Its Satellites
490R (1 ea.) Readings (European Geography)

German
341R (3) Masterpieces of German Literature in Translation
401 (3) Cultural History of German-Speaking Peoples
*440 (4) Survey of German Literature and Culture
441 (3) German Literature from the Beginning to 1700
442 (3) German Literature in the Eighteenth Century
443 (3) German Literature in the Nineteenth Century
*444 (3) German Literature in the Twentieth Century

History
310 (3) The Early Middle Ages
311 (3) The Late Middle Ages
312 (3) The Renaissance: Age of Transition
313 (3) The Reformation: Age of Turmoil
320 (3) The Age of Enlightenment
*322 (3) Nineteenth-Century Europe
*323 (3) Europe in the Twentieth Century
326 (3) Western Civilization I (Travel Study)
327 (3) Western Civilization II (Travel Study)
*329 (3) The Austrian Empire and Eastern Europe
*330 (3) Tsarist Russia
*331 (3) The USSR and Eastern Europe
*332 (3) France
*333 (3) Modern Germany
*334 (3) Spain
*335 (3) England
412 (3) Medieval Institutions
415 (2) Expansion of Europe
424 (2) European Diplomatic History to 1815
425 (2) European Diplomatic History since 1815
429 (3) European Intellectual History since the Enlightenment
*433 (2) Twentieth-Century Germany: Hitler and Beyond
435 (3) Constitutional Foundations of English History
436 (3) Tudor and Stuart England
498 (1-2) Directed Readings (European History)

Humanities and Comparative Literature
202 (3) The Arts in Western Culture: Late Renaissance to the Modern Age
310 (3) Introduction to Comparative Literature
*338 (3) European Novel
340R (3 ea.) Russian Literature in Translation
341R (3) Masterpieces of German Literature in Translation
344R (3) Masterpieces of Scandinavian Literature in Translation
355 (3) World Classics I
356 (3) World Classics II
371 (3) Literature of the Middle Ages
372 (3) Literature of the Renaissance
373 (3) Literature of the Enlightenment
*374 (3) Literature of the Romantic Movement
*375 (3) Literature of Realism and the Modern Age
401 (3) Cultural History of Scandinavia

Italian
*440 (4) Survey of Italian Literature and Culture
445 (3) Introduction to Italian Civilization
460 (3) The Age of Dante
465 (3) Italian Literature of the Renaissance
470 (3) Italian Literature of the Romantic Period
*485 (3) Italian Literature of the Twentieth Century

Music
103 (2) Survey of Music Literature
471 (3) Sixteenth-Century Counterpoint
472 (3) Eighteenth-Century Counterpoint
484, 485 (3 ea.) History of Music
566R (2 ea.) Applied Music Literature

Philosophy
221 (3) Ancient and Medieval Origins of Western Philosophy
222 (3) The Emergence of Modern Philosophy
371R (2-5 ea.) Topics in Philosophy (European)
372R (2-5 ea.) Figures in Philosophy (European)
373R (2-5 ea.) Historical Movements in Philosophy (European)

Political Science
150 (3) Comparative Government and Politics
305 (3) Western Political Heritage—Modern
309R (3 ea.) Topics in Political Philosophy (European)
*350R (3 ea.) Communist and Totalitarian Government and Politics (Soviet Union, Eastern Europe)
*351R (3 ea.) Parliamentary Government and Politics (France, Germany, United Kingdom)
359R (3 ea.) Topics in Comparative Government and Politics (European)
368 (3) Anglo-American Legal Institutions
*377R (3 ea.) Foreign Relations (Soviet Union)
*378R (3 ea.) International Systems (Western Europe, Communist World)
379R (3 ea.) Topics in International Relations (European)
498R (1-2 ea.) Directed Individual Study (European Politics)

Religious Instruction—Church History and Doctrine
352 (2) Mormonism and the Christian Tradition

Russian
340R (3) Russian Literature in Translation
345 (3) Cultural History of Russia
440 (2) Survey of Russian Literature from the Beginning through the Eighteenth Century.
*441 (3) Survey of Russian Literature in the Nineteenth Century
*442 (3) Survey of Russian Literature in the Twentieth Century

Scandinavian
344R (3) Masterpieces of Scandinavian Literature in Translation
401 (3) Cultural History of Scandinavia
*441 (4) Dano-Norwegian Literature
*445 (4) Swedish Literature
*447 (4) Finnish Literature
490R (1-3) Individual Study in Scandinavian
594R (3) Seminar in Scandinavian Studies

Spanish
345R (2) Contemporary Culture

*441 (4) Survey of Spanish Literature
*445 (2) Iberian Civilization
470R (3 ea.) Golden Age Literature
485 (3) Introduction to Contemporary Spanish Literature

Family Economics and Home Management

Professor: Poulson.
Associate Professor: Hansen (Chairman, 1216-A SFLC).
Assistant Professor: Bastian.
Instructors: Garrison, Gorham, Slaugh, Vincent.

The curriculum in the Department of Family Economics and Home Management has been developed for the following purposes:

1. To educate and train students in four major options—consumer affairs, home management, equipment and foods/housing, and home economics in other cultures—thereby preparing them for professional careers in private, governmental, business, and industrial organizations and for graduate study.
2. To encourage and enable all students to develop their managerial competencies, which are directly related to financial security, consumer satisfaction, and successful family living.
3. To serve students majoring in other fields, such as future home economics teachers, marriage counselors, and social workers, who need background and competence in management, family finance, consumer affairs, and/or family housing and equipment.

An adviser is assigned to each student upon admission to the program. Advisers assist the student in planning the four-year course of study that will best serve his professional interests. Courses in the department are based on root disciplines in the social, biological, and physical sciences and in the humanities. Interdisciplinary study is emphasized in each option. Four major options are available, each offering a wide range of professional opportunities.

Option One—Consumer Affairs and Family Economics

Courses Required (Total credit hours: 52)
FEHM 295 (5), 335 (2), 336 (1), 350 (2), 415 (2), 435 (3), 460 (2), 485 (3), and 490 (1).

Bus. Mgt.
241 (3) Introduction to Marketing
CDFR
361 (3) Family Relationships
440 (2) Family Life in the Middle and Later Years, or
461 (3) The Family and the Law
Clo. and Text.
260 (3) General Textiles
300 (2) Clothing the Family
Comms.
211 (3) Newswriting
230 (2) Introduction to Advertising
Econ.
110 (3) Economy, Society, and Public Policy
212 (3) Economics of the Market System
Ed.
301 (2) Basic Concepts and Principles of Teaching
FSN
160 (2) Introduction to Food Technology
Psych.
111 (3) General Psychology, or
Sociol.
111 (3) Introduction to Sociology

Option Two—Home Management and Family Economics

Courses Required (Total credit hours: 41 plus minor)
FEHM 295 (5), 335 (2), 336 (1), 350 (2), 370 (2), 415 (2), 420 (2), 460 (2), 485 (5), and 490 (1)
CDFR
361 (3) Family Relationships
Ed.
301 (2) Basic Concepts and Principles of Teaching
Econ.
110 (3) Economy, Society, and Public Policy
FSN
110 (2) Principles of Food Preparation
115 (2) Essentials of Nutrition
340 (2) Meal Management
Psych.
111 (3) General Psychology, or
Sociol.
111 (3) Introduction to Sociology

Students electing option two are required to have a minor which complements Home Management and Family Economics. Any of the following fields is recommended:

1. Child Development and Family Relationships
2. Clothing and Textiles
3. Economics
4. Equipment and Housing
5. Food Science and Nutrition
6. Psychology
7. Social Work
8. Sociology

See an adviser in FEHM for recommended courses leading to a minor in each of these fields.

Option Three A—Equipment and Foods

Courses Required (Total credit hours: 53)
FEHM 295 (5), 335 (2), 336 (1), 350 (2), 370 (2), 435 (6), 450 (3), 485 (5), and 490 (1)
Chem.
281 (3) Introductory Physiological Chemistry
Comms.
101 (2) Introduction to Mass Communications
211 (3) Newswriting
Ed.
301 (2) Basic Concepts and Principles of Teaching
FSN
160 (2) Introduction to Food Technology
235 (4) Basic Human Nutrition
236 (1) Laboratory Experience in Nutrition
264 (3) Introduction to Food Science
265 (2) Introduction to Food Science Laboratory
340 (2) Meal Management

Option Three B—Equipment and Housing

Courses Required (Total credit hours: 49)
FEHM 295 (5), 335 (2), 336 (1), 350 (2), 370 (2), 435 (6), 450 (3), 485 (5), and 490 (1)
Comms.
101 (2) Introduction to Mass Communications
Ed.
301 (2) Basic Concepts and Principles of Teaching
FSN
110 (2) Principles of Food Preparation
115 (2) Essentials of Nutrition
340 (2) Meal Management
Int. Env.
240 (3) Introduction to Interior Design
331 (3) Residential Interior Architecture and Furnishings from 1900
340 (3) Materials and Components of the Interior

Psych.
450 (3) Personality

Option Four—Home Economics in Other Cultures

Courses Required (Total credit hours: 44)

FEHM 170 (3), 295 (3), 335 (2), 336 (1), 435 (3), 475R (3), and 485 (8)

CDFR
130 (1) Human Social Behavior
210 (3) Child Development

Clo. and Text.
165 (4) Dress and Pattern Construction

Econ.
110 (3) Economy, Society, and Public Policy

FSN
110 (2) Principles of Food Preparation
115 (2) Essentials of Nutrition

Health
121 (2) First Aid and Safety Instruction

Nurs.
288 (1) Family Health and Home Nursing

Sociol.
111 (3) Introductory Sociology

A minor is recommended in any one of the following fields:

1. American Indian Studies
2. Anthropology
3. Child Development and Family Relationships
4. Clothing and Textiles
5. Latin American Studies
6. Psychology
7. Recreation Education
8. Social Work
9. Sociology
10. Youth Leadership

Courses

170. Management of Resources. (3:2:2) Gorham, Slaugh

For students living at home or in group housing and for newly married couples. Emphasis on time, money, and energy management.

295. Family Money Management. (2-5:2-5:0) Bastian, Hansen

Financial goals, resources, and methods for individuals and families. Developing consumer competencies in purchasing goods, services, and insurances. Investments, savings and estates.

335. Household Equipment. (2:2:0) Garrison, Vincent

Principles underlying selection, construction, operation, and care of household equipment. Laboratory experience in testing performance and comparing costs.

336. Household Equipment Laboratory. (1:0:2) Prerequisite: concurrent registration in FEHM 335.

Testing performance and comparing features and costs of household equipment.

350. Principles of Home Management. (2:2:0) Home Study also. Prerequisite: Sociol. 111 or Psych. 111. Poulson, Slaugh

Values, decision making, human resource development and supervision.

370. Residence Management. (2:2:6) Home Study also. Prerequisites: FSN 340, FEHM 335. Bastian

Application of management principles to ethnic and socioeconomic needs of families. Practicum provides for living experience in several varying situations.

415. Consumer Law and Public Policy. (2:2:0) Poulson

Consumer protection, rights, and responsibilities under existing laws. Current issues, proposed legislation, deficiencies, and enforcement problems.

420. Management of Time and Human Resources. (2:2:0) Prerequisite: FEHM 350. Poulson

Perspectives concerning time and human resources in family life. Concepts and principles related to the use of these resources for furthering the attainment of family goals.

435. Housing the Individual and Family. (3-6:5:1) (G-SS) Garrison, Hansen

Social, psychological and managerial aspects of housing. Planning, selecting and financing home environments. Indoor and outdoor lighting.

450. Advanced Household Equipment. (2-3:2:4) Prerequisite: FEHM 335. Garrison, Vincent

Study and experimental problems of fabric-care and food-related appliances.

460. Consumers in the Market. (2:2:0) Home Study also. Poulson, Hansen

Consumers' role in the marketing system; consumer decision making, regarding market goods and services; evaluation of information sources for consumers; consumer protection programs.

475R. Special Topics in Family Economics and Home Management. (1-3:1-3:0 ea.) (m) Prerequisite: consent of instructor.

485. Demonstration Techniques and Field Work. (3-8:Arr.:Arr.) Prerequisite: Ed. 301. Slaugh, Garrison

Techniques for group demonstrations and presentations. Field experiences with various age groups, socioeconomic strata and cultures. Business and government internships.

490. Seminar. (1:0:3)

Advanced research and presentations in family economics and home management.

495. Readings and Projects. (1-2:1-2:0)

Consultation and directed use of library and laboratory materials.

Family Studies

Coordinator: M. Martin (206 SFLC)

Interdisciplinary Work in the College of Family Living

For students who are interested in a general program drawing from several or all departments in the College of Family Living and who are not interested in preparing for a professional career.

The Associate Degree

The two-year program leading to the Associate of Science degree in family studies is designed for students who wish to become more proficient in homemaking skills and to increase their ability to cope with the responsibilities associated with marriage and parenthood.

Departmental courses may be chosen from one or more departments in the College of Family Living, provided the specified prerequisites are met for a particular course. Upon completion of this program, a student may find it desirable to transfer to a four-year program leading to the baccalaureate degree in the College of Family Living.

Requirements for Graduation

General Education Requirements	Hours
Engl. 111 212, or 215	6
Hist. 170	3
Health 130	2
Physical education	1
Religion (including 121 and 122—one class each semester in residence)	8-10
Humanities	2

Biological science	2
Physical science	2
Social science	2

Electives: enough to bring total hour requirement to 64 hours.

Departmental Requirements

Courses may be selected from one or more of the following departments:

Child Development and Family Relationships
Clothing and Textiles
Family Economics and Home Management
Food Science and Nutrition
Interior Environment

Total hours	30

An associate degree in family living may be taken entirely by Home Study. For more information on this program, contact the Home Study Office.

Bachelor's Degree in Family Studies

This program is designed for students who want a composite major in the College of Family Living without a teaching certificate. It is ideal for the student who is seeking to develop skills for the enrichment of family life and who is not concerned with prepering for a specific career or occupation. This program is also suggested for those students who would like to major in the college but who have not yet decided upon which department.

The requirements for this major are as follows: a) completion of the University general education requirements as outlined in the catalog; b) a minimum of 36 credit hours in **three** (minimum of 12 hours in each) of the following five departments: Child Development and Family Relationships, Clothing and Textiles, Family Economics and Home Management, Food Science and Nutrition, and Interior Environment; **and** c) at least one class in each of the two remaining departments.

Students needing advisement or information are referred to the College of Family Living Advisement Center in 206 SFLC.

Food Science and Nutrition

Professor: Bennion.
Associate Professors: Johnson, Hill (Chairman, 2218-B SFLC).
Assistant Professors: Freeman, Walker.
Instructors: Franz, Larson, O'Nion, Turner.

The Department of Food Science and Nutrition curricula are planned to prepare the student for graduate work, college teaching, and such positions as a medical dietitian, food research and development scientist, quality control supervisor, food industry administrator or inspector, or test kitchen specialist. Departmental programs are designed to help students—

1. understand the vital role of nutrition in developing and maintaining optimum human health;
2. apply basic principles of the biological, physical, and social sciences to the solving of current problems that involve human nutrition and food science;
3. become scientists capable of developing new foods and food resources, monitoring food nutrients during processing, and analyzing for environmental contaminants;
4. prepare for a profession in food science or nutrition.

Food science and nutrition majors may register in either the College of Family Living or the College of Biological and Agricultural Sciences.

Students in food science may become student members of the Institute of Food Technologists, and those in dietetics may join the dietetics club. Junior and senior students in medical dietetics may also become junior members of the American Dietetic Association.

For majors in food science and nutrition, a minimum of 24 hours in departmental courses is required, including FSN 235, 264, and 265. A minor in the department requires 14 hours, including FSN 235, 264, and 265. The department offers programs for specialization in the following options: (1) food science, (2) medical dietetics, and (3) nutrition.

A major medical dietetics combines clinical experience in hospitals and community agencies with academic course work, beginning with the junior year. Students who successfully complete this major with a B.S. degree are eligible for membership in the American Dietetic Association and may take a national exam to become a registered dietitian. Students must be formally admitted to the program through the Department of Food Science and Nutrition prior to the beginning of their junior year. Students planning to follow this major should contact the program director (2218 SFLC) by the beginning of their sophomore year.

Option One—Food Science

Freshman	**Hours**
Religion	4
English	3
Physical education and Health	3
Psych. 111	3
Bot. 101 or Zool. 105	3
Math. 105 and 106, or 111	5–6
Chem. 105, 106	8
FSN 160	2
Electives	2–4
Total hours	33–36

Sophomore	**Hours**
Religion	4
Physical education	1
Chem. 252, 481, 484	11
Math. 109 or 112	4
Physics 105, 106, 107	7
Hist. 170	3
Electives	2–4
Total hours	32–34

Junior	**Hours**
Religion	4
Engl. 316	3
Micro. 321, 322	4
FSN 264, 265	5
FSN 235, 237	5
FSN 350	4
FSN 461	4
FSN 462	3
Total hours	32

Senior	**Hours**
Religion	4
FSN 450, 465, 490	9
Agr. Econ. 112	3
Humanities	6
An. Sci. 328*	2
Micro. 361	3
Micro. 381	2
Electives	2–4
Total hours	31–33

*Strongly recommended

Option Two—Medical Dietetics

Freshman	**Hours**
Religion	4
English	3

Physical education	1
Chem. 105, 106	8
Math. 110R	3
Sociol. or Psych.	3
Micro. 321, 322**	4
FEHM 295 or Econ.	2–3
Zool. 260	2
Hist. 170	3
Total hours	33–34

Sophomore	Hours
Religion	4
Physical education	1
Zool. 261	4
Chem. 252	5
Org. Behav. 321	3
Humanities	6
FSN 235, 237, 264, 265	10
Electives	3
Total hours	36

Spring/Summer (after sophomore year)	
FSN 399	2–5

Junior	Hours
Religion	4
Chem. 481, 484	6
Ed. 301	2
Zool. 361	4
Stat. 221	3
FSN 300, 356, 373**, 435	12–14
Total hours	31–33

Senior*	Hours
Religion	2
Stat. 221	3
Engl. 316	3
Hist. 170	3
Sociology or Anthropology	3
FSN 400, 425, 456, 458	16
Humanities	2
Electives	3
Total hours	35

*One semester (Fall or Winter) of the senior year will be spent in Salt Lake City.
**Recommended.

Option Three—Nutrition

Students may also choose a nutrition option with a strong emphasis in chemistry as preparation for graduate work in nutrition.

Courses

110. Principles of Food Preparation. (2:1:2) Turner
Open to all students. Techniques of food preparation for maximum retention of nutritive value are taught through lecture and laboratory experience.

115. Essentials of Nutrition. (2:2:0) Home Study also. (m) Larson
Basic concepts of human nutrition and their application in the achievement and maintenance of optimum health.

160. Introduction to Food Technology. (2:2:0) (m) Freeman, Johnson
Food manufacturing and distribution around the world and some factors that have contributed to the modern food industry.

235. Basic Human Nutrition. (4:4:0) (m) Prerequisites: Chem. 252 or 281, Zool. 105 or 261. Hill
Basic principles of human nutrition.

236. Laboratory Experience in Nutrition. (1:0:2) (m) Prerequisite: concurrent registration in FSN 235. Hill
Laboratory experience in nutrition for nonmajors.

237. Experiments in Nutrition. (1:0:3) (m) Prerequisite: concurrent registration in FSN 235.
Students will conduct experiments which illustrate principles of nutrition.

264. Introduction to Food Science. (3:2:1) (m) Prerequisites: Chem. 252 or 281, Micro. 121 or 321, concurrent registration in FSN 265. Freeman, Johnson
A study of chemical and physical properties of foods, with application in preparation and processing.

265. Introduction to Food Science Laboratory. (2:0:6) (m) Prerequisite: concurrent registration in FSN 264. Freeman, Johnson

300. Clinical Nutrition 1. (4:2:6) Prerequisites: FSN 235 and consent of instructor. Bennion
The role of the professional dietitian, including techniques of dietary interviewing, nutritional assessment, and dietary modification in disease.

310. Food Patterns of Various Cultures. (2:1:3) (m) Prerequisite: a college course in food preparation or consent of instructor.
The social, religious, economic, and aesthetic significance of food customs of various cultures.

☐**Animal Science 328. Meat Processing Methods.** (2:1:3)

340. Meal Management. (2:1:3) (m) Prerequisites: FSN 110 or 264 and 265, completion of or concurrent registration in FSN 115. Turner
Organization and management of time, energy, and finance in planning and preparing family meals.

350. Food Analysis. (4:2:6) (m) Prerequisite: Chem. 252. Hill
Principles, methods, and instrumentation involved in the physical and chemical analysis of raw and processed foods.

356. Clinical Nutrition 2. (4:2:6) (m) Prerequisites: FSN 300, Chem. 481, Zool. 361. Bennion
Biochemical and physiological abnormalties in diseases requiring dietary modification; nutrition as a therapeutic aid in treatment of disease.

☐**Microbiology 361. Food and Dairy Microbiology.** (3:2:3)

373. Quantity Food Production and Service. (2:1:3) (m) Prerequisites: FSN 110 or 264 and 265 or consent of instructor. Staff
Standards and procedures for preparing and serving food to large groups. Planning menus and costing recipes.

399. Cooperative Education. (1-9:Arr.:Arr.) (m) Prerequisite: consent of instructor. Staff
Students will participate in a variety of work-study programs.

400. Community Nutrition. (3:2:6) (m) Prerequisite: FSN 235 or consent of instructor. Larson
Theory and principles of public health nutrition, with application to specific community nutritional programs.

425. Nutrition in Growth and Development. (4:Arr.:Arr.) Prerequisite: FSN 356. Staff
The interaction of nutrition and genetics during pregnancy, lactation, early infancy, and childhood.

435. Experimental Human Nutrition. (4:4:0) (m) Prerequisites: FSN 235, Chem. 481 and concurrent registration in Chem. 484. Walker
Metabolic interrelationships among nutrients applied to the study of human nutrition.

450. Food Chemistry. (4:3:3) (m) Prerequisites: FSN 264, 265; Chem. 481, 484. Freeman

Chemistry of the chief components of food, and the effects of processing and storage on food constituents.

456. Medical Dietetics. (8:Arr.:Arr.) Prerequisites: FSN 356, 435; senior status.
Clinical experience with nutritional problems through intensive work with hospitalized patients.

458. Management in Dietetics. (2:Arr.:Arr.) Prerequisites: previous or concurrent registration in FSN 456 and Org. Behav. 321.
Study and observation of management processes in the practice of dietetics.

461. Food Processing. (4:3:3) (m) Prerequisites: FSN 264, 265. Freeman
Application of science in food processing. Characteristics of raw food materials; post-harvest physiology; methods of food preservation.

462. Food Quality Preservation. (3:2:3) (m) Prerequisites: FSN 264, 265. Johnson
The science of preserving food quality during processing and storage. Factors affecting food acceptability, packaging of foods, food quality control, food laws and regulations.

465. New Food Product Development. (3:1:6) Prerequisites: FSN 461 and 462 or equivalent. Johnson
Ingredients and methods used in developing new foods acceptable to consumers.

490. Seminar. (2:2:0) Prerequisite: 10 credit hours in food science and nutrition or consent of instructor.

492. Fieldwork in Food Science and Nutrition. (6-8:0:20-24) Prerequisites: 12-15 credit hours in food science and nutrition, consent of department chairman.

494R. Special Problems in Food Science and Nutrition. (1-3:0:3-9 ea.) (m) Prerequisites: consent of instructor and department chairman, 14 hrs. of FSN courses.
Independent study of a special problem in food science and nutrition under the direction of instructor.

635. Protein and Amino Acid Nutrition. (3:3:0) Prerequisite: FSN 435 or equivalent. Walker
Offered fall semester.

636. Energy Balance and Vitamin Nutrition. (3:3:0) Prerequisite: FSN 435 or equivalent. Hill
Offered winter semester.

637. Mineral Nutrition. (3:3:0) (m) Prerequisite: FSN 435 or equivalent. Walker
Offered spring semester.

652. Carbohydrates and Their Reactions in Foods. (3:3:0) Prerequisite: FSN 450 or equivalent. Johnson

654. Proteins and Their Reactions in Foods. (3:3:3) Prerequisite: FSN 450 or equivalent. Hill

656. Food Lipids and Their Reactions. (3:3:3) Prerequisite: FSN 450 or equivalent. Freeman

690. Seminar in Food Science. (1-2:1-2:0)

691. Seminar in Nutrition. (1-2:1-2:0)

697R. Research. (1-3:Arr.:Arr. ea.)

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

Genealogy

Assistant Professors: Pratt, Stevenson, Wright (Coordinator 284 MARB).
Instructors: Bloxham, Johansson.

Genealogical instruction is a component of the newly organized Institute of Genealogical Studies in the College of Social Science and provides training and practical research for persons who desire to do competent genealogical research, whether on their own genealogy or in assisting others. The program also provides training for ward and stake genealogical workers and satisfies academic requirements.

Credit and noncredit courses are available covering a wide area, including introductory work, regional genealogy, seminars in applied research and special problems, and the LDS priesthood genealogy program. Courses are available through daytime study on the campus, through Home Study and Evening School, Centers of Continuing Education, Special Courses and Conferences, and through Education Week circuits.

Credit courses in genealogy can fill a minor requirement (14 hours) when approved by the major department, and upper division courses fulfill general education requirements in social science. Two introductory courses (261 and 362) also give religion credit. Genealogy can also be a component part of a master's program, with the approval of the committee chairman, and course work in genealogy can be a stepping stone to advanced academic work. Courses may also be used as the major component in the new Department of University Studies or in the Bachelor of Independent Studies.

Courses

261. (Geneal.-Relig.) Introduction to Genealogy. (2:2:1) Home Study also. (G-R m)
An introductory course in basic genealogical concepts, doctrinal background, essential record sources, modern methods of research, numerous genealogical forms and their uses, successful correspondence, the writing of biographies and autobiographies, the use of the Genealogical Society Library, and the starting of one's book of remembrance.

310. North American Research I. (3:2:1) Home Study also. (m) Prerequisite: 261 or consent of instructor. Bloxham, Wright
Introduction to genealogy in the United States and Canada with emphasis on research methods and sources used in the survey phase.

311. North American Research II. (3:2:1) (m) Prerequisite: 261 or consent of instructor.
Research methods and sources peculiar to the United States and Canada with emphasis on the use of major genealogical sources.

320. British Research I. (3:2:1) Home Study also. (m) Prerequisite: 261 or consent of instructor. Bloxham, Pratt
Research methods and sources peculiar to early Britain and modern England and Wales; including sources before 1500, civil registration, parish registers, census, probates, military, and nonconformist records.

321. British Research II. (3:2:1) (m) Prerequisite: 261 or consent of instructor. Bloxham, Pratt
Analysis and application of sources and genealogical techniques peculiar to Scotland and Ireland; with intensive paleographic studies in British sources.

330. Continental European Research I. (3:2:1) Home Study also. (m) Prerequisite: 261 or consent of instructor. Johansson
Research methods and sources peculiar to Scandinavia; including an introduction to essential language and historical background.

331. Continental European Research II. (3:2:1) (m) Prerequisite: 261 or consent of instructor. Johansson
Research methods and sources peculiar to Germanic-Slavic countries; including an introduction to essential language and historical background.

362. (Geneal.-Relig.) Genealogy and the LDS Family. (2:2:0) Prerequisite: 261.
A survey course in methods of research, indexes, filing, records, family histories, and family organizations.

400R. Seminar and Special Problems. (2:Arr.:Arr.) (m)
A practicum in genealogical research with emphasis on the student solving personal genealogical problems.

499R. Travel Studies. (3-6:Arr.:Arr.) (m)

General Studies

Coordinator: Goodson (370 BRMB)

The General Studies program serves two groups of students:

1. Students who have not declared majors: these enroll as "General Studies (open major)" students.
2. Students admitted to the University on academic warning and probation; these enroll as "General Studies (Guided Studies)" students.

Services for General Studies

(Open Major) Students

Major and Career Advisement and Counseling

The student without a major is provided advisement and counseling to help him formulate his career plans, select a major, and plan academic courses in which he can acquire a general education and the background necessary for wise selection of a major. This advisement, provided primarily by Career Education faculty (see "Career Education"), is obtained by contacting the College of General Studies Advisement Center (140 BRMB).

Courses and Library Resources on Majors and Careers

Through the Career Education program, courses on decision-making and carers are provided (see "Career Education"), as is a Career Resource Center (150 BRMB) consisting of current audiovisual sources and books on careers and majors.

Services for General Studies

(Guided Studies) Students

Advisement

Each student is assigned an adviser who will assist him in planning his academic program to correct deficiencies, establish a success pattern, and thereby attain regular student status. He will also receive the advisement services, described above, provided for the student with an open major.

Advisers are assigned through the College of General Studies Advisement Center (130 BRMB), and all inquiries should be directed there.

Classes

General Studies 110 and 121 are designed to develop efficient reading and study skills. They are geared for all students who feel a need for assistance, whether they are having academic difficulty or simply trying to improve their present reading and study methods. Reading, listening, note-taking, preparing for and taking examinations, time scheduling, spelling, and self-motivation are among the skills and attitudes with which the classes are concerned. General Studies 110 is required of all General Studies (Guided Studies) students.

Courses

15. Remedial Spelling. (0:2:0)
Improvement of ability to spell through the study of such techniques as spelling rules, prefixes, suffixes, roots, and use of the dictionary.

110. Effective Study and Adjustment to College. (1:3:0)
Home Study also.
Course covers such areas as budgeting time, note-taking, reading, listening, using the library, taking examinations, and acquiring motivation and concentration.

121. College Development Reading. (1:1:1)
Attention is given to speed and comprehension and to vocabulary as it relates to increased reading efficiency.

Courses Serving Other College of General Studies Programs

100R. Fundamentals of Mathematics. (2:4:Arr.)
Concepts and skills of arithmetic and algebra taught at three levels of proficiency. Prepares students for general-education courses (e.g., Math 110R).

106. English: Personal Communication. (3:5:0)
For two-year students. Designed to develop ability to communicate effectively and to develop competence in specialized report writing for formal classes (does not fulfill freshman English requirements for a baccalaureate degree).

107. Contemporary Issues in Indian Affairs. (3:3:1) (G-SS)
Contemporary Indian America. Evaluation of Indian movements and current tribal legislation on the national, state, and tribal levels.

Geography

Professor: Layton (Chairman, 167-D HGB).
Associate Professors: Grey, Hudman, Jackson, Stevens, Tuttle (emeritus).
Assistant Professors: Hinckley, Horiuchi.

The Geography Department offers a variety of programs centered around spatial analysis and tailored to meet the special needs of individual students. Programs lead to completion of the B.S. and M.S. degrees, and also the Associate of Science degree in planning-cartographic technology. Graduates are employed in jobs with a wide variety of titles, such as planner, commodities analyst, travel agent, resources specialist, cartographer, industrial location analyst, climatologist, photo interpreter, intelligence specialist, as well under the title, Geographer. Employment is available in many areas of private business and industry and in a variety of government agencies at all levels.

Geography provides for many students an excellent minor covering areas of spatial analysis that apply directly to various major fields. Since all phenomena occur in some place, an understanding of places and spatial relationships is critical. An effort is made in all geography classes to have students from other disciplines apply information and methodology in spatial analysis directly to their particular special interest.

Because the program in geography is directed toward a variety of interests and employment possibilities, it is critical that all students consult with departmental advisers in planning their program or in selecting courses to fill specific needs. Minors and other students, as well as majors, are encouraged to seek advisement from departmental faculty. Students should also be aware that many employment opportunities require training at the graduate level.

Bachelor of Science Degree

Teaching Major

Courses for certification in elementary and secondary education with an emphasis in geography are listed in the Education section of the catalog. Geography may also be used by graduate students in the junior college certification program. Students planning on certification for teaching should check carefully with the Teacher Certification Office regarding their program.

General Emphasis

Students desiring a general program with a liberal arts emphasis as a preprofessional degree or one that may be structured in consultation with an adviser as preparation for additional training in graduate school, military service, area analysis, diplomatic service, tourism, planning, business, or government should take the following sequence:

Lower division: Geog. 101, 102, 120, 211, 231.

Upper division: Geog. 450, 504, 598, and electives selected in close consultation with the student's adviser to make a total of 32 hours.

Cartography Emphasis

Students who plan to seek employment in the area of cartography should work out an individual program with a departmental adviser. Employment in some areas of cartography requires a strong background in mathematics, surveying, and computer science as well as in cartographic drafting and design.

Major Geographic Planning

Students desiring a stronger preparation for regional, city, environmental, resource, or other planning or industrial location, or who require a strong background in urban studies and spatial analysis for a career in government, business, or industry or entry into a graduate professional program should take the sequence listed below:

Geography core: Geog. 211, 212, 231, 310, 312, 504, 598

Associated geography group (8 hours selected in consultation with adviser): Geog. 101, 301, 302, 332, 401, 441, 495, 522, 533

Tool courses: Math. 109; or Sociol. 205

Associated supporting courses (22 to 24 hours to be selected, in consultation with adviser, from classes such as those in the following suggested list to meet the student's specific need):

Ag. Econ. 350R, 355, 390
Econ. 330, 352
Geog. 512, Regional geography (2 or 3 hours for those planning on working in a particular foreign area)
Pol. Sci. 311, 312, 330
Rec. Ed. 410
Sociol. 245, 370
Urban Design: ArtDs. 347, 447R

Associate Degree in Planning-Cartographic Technology

The associate degree as a planning-cartographic technician is designed to prepare individuals for employment in a host of agencies: federal, state, and local; and in private firms involved in planning and formulating maps for many purposes. The program provides instruction in the basic skills of cartography, field work, and visual presentation and provides a general background in related areas applicable to planning and related fields.

For those individuals who may wish additional education, this degree serves as the base for a four-year degree in geography with emphasis in either planning or cartography.

Optional hours should be filled with courses selected, in consultation with the departmental adviser, to reinforce a particular skill or interest related to the student's individual program and goals.

First Year	F	W
Relig. 121, 122	2	2
Hist. 170		3
Geog. 101, 102	4	
Geog. 211		2
Des. Tech. 111	2	
Math. 105	3	
Engl. 111	3	
Econ. 110		3
Physical education	½	½
Physics 177		3
Pol. Sci. 110		3
Electives	2	
Total hours	16½	16½

Second Year	F	W
Sociol. 205	3	
Civ. Eng. 211 (optional)		2
Geog. 212	2	
Geog. 312		3
Geog. 312 or 332	2	
Religion	2	2
Humanities		2
Bot.-Zool. 250	3	
Health 130		2
Engl. 316		3
Electives	5	2
Total hours	17	16

Geography Minor

It is suggested that a student wishing to present a formal minor in geography work out a program suited to his specific interest and need in consultation with the chairman of the Geography Department.

Master of Science Degree

Students planning to obtain an M.S. degree are required to take Geog. 601, 620, 630, 698R, and 699, plus electives selected in consultation with their committee to total 30 hours. Graduate students should take Geog. 312 as a part of their undergraduate major, or be prepared to take this class in addition to the 30 hours listed above. Students with undergraduate majors other than geography should consult, on an individual basis, with the chairman of the Geography Department regarding admission to the graduate program.

Courses

101. Introduction to Geography. (3:3:0) Home Study also. (G-SS m)

The physical environment. Distributions and interrelationships of climates, landforms, soils, natural resources, and their significance to man.

102. Introduction to Geography Laboratory. (1:0:2) (G-SS m)

Laboratory experience with topics covered in Geog. 101. Must be taken concurrently with or subsequent to Geog. 101.

120. Geography and World Affairs. (3:3:0) Home Study also. (G-SS m)

A survey of the world, stressing human and economic geography of major political regions. Essential for an understanding of today's world.

211. Introduction to Maps and Air Photos. (2:1:2) (G-SS m) Hinckley

Maps and air photos as tools for teaching and research. Sources of maps and photos and practice in their use.

212. Geographics. (2:1:2) Hinckley, Layton

Preparation of cartographic materials for visual presentation.

231. Economic Geography. (3:3:0) Home Study also. (G-SS m) Layton

A brief survey of the origin, importance, and movement of major agricultural and mineral commodities in world affairs.

300. Introduction to Geographical Literature. (1:1:0) (G-SS m)

Introduction to basic source materials in geography.

To be taken as early as possible in major and minor programs.

301. Introduction to Cultural Geography. (2:2:0) (G-SS m) Jackson
Culture distributions and their relationship to existing geographic phenomena.

302. Geography of Urban Environment. (2:2:0) (G-SS m) Hudman
Introduction to geographic techniques and concepts in analysis of urban America.

310. Land Use Planning. (3:2:2) (G-SS m) Jackson
Introduction to land use concepts, activities, problems, and techniques to provide the student with theoretical and practical background for land use planning and development.

312. Map Drawing. (3:1:4) (G-SS m) Hinckley
Maps as a means of recording information. Methods of illustrating various types of data, and preparation of maps for reproduction and publication.

332. Resource Management. (2:2:0) (G-SS m) Jackson
Geographical analysis of the world's resource patterns.

401. Geography of Climates. (3:3:0) (G-SS m) Prerequisites: Geog. 101 and 102 or consent of instructor. Grey
The elements, controls, distribution, and classification of the climates of the earth.

405. Geography of Landforms. (2:2:0) (G-SS m) Prerequisites: Geog. 101 and 102 or consent of instructor. Stevens
The elements of landforms, their distributions, and cultural significance.

441. Political Geography. (3:3:0) (G-SS m) Horiuchi
The physical, political, economic, and social elements of political geography and analysis of the power structure of the world's major powers.

450. North America. (3:3:0) Home Study also. (G-SS m) Jackson
The United States and Canada, including climates, landforms, natural resources, agriculture, and industries.

451. Historical Geography of North America. (3:3:0) (G-SS m) Jackson
The significance of climate, landforms, location, resources, and other geographic factors in the settlement of North America.

453. Geography of Utah. (2:2:0) (G-SS m) Stevens
A study of the state's cultural and physical characteristics—their distribution and significant interrelationships.

455. Latin America. (3:3:0) Home Study also. (G-SS m) Layton
Physical and cultural geography of the nations of South and Middle America.

460. Europe. (3:3:0) Home Study also. (G-SS m) Stevens
The land and how man is utilizing the natural and human resources of Europe. Emphasis on human geography of major political regions.

465. USSR and Its Satellites. (3:3:0) (G-SS m) Jackson
A concentrated study of the physical features, resources, agriculture, industries, and distribution of peoples.

470. Asia. (3:3:0) (G-SS m) Horiuchi
Geography of one-third of the earth and two-thirds of its people. Man's use of his natural environment.

475. Africa. (3:3:0) (G-SS m)
Systematic regional treatment of physical, economic, political, and cultural geography of Africa.

480. Australia and New Zealand. (2:2:0) (G-SS m) Grey

493. Special Problems. (1-2:1-2:0) (G-SS)
For majors only.

495R. Planning Internship. (1-9:0:0) Prerequisite: 12 hours of geography core and associated planning classes. Hudman
Study and work experience in planning offices at city, county, and/or regional levels throughout the United States and some foreign areas.

501. Geography for Teachers. (3:3:0) Home Study also. Hudman
A systematic approach to the fundamentals of geography, emphasizing source materials, teaching methods, tools, and techniques.

502R. Seminar in Regional Geography. (2:2:0 ea.) (m)

504. Geographic Field Techniques. (2:1:2)
Experience in geographic field techniques applied to physical, social, and biological sciences.

512. Cartography. (3:1:4) (m) Prerequsite: Geog. 312. Hinckley

520. Spatial Analysis. (3:3:0) Prerequisite: Sociol. 205 or Stat. 221.
Application of quantitative and location-allocation models to determine and account for location of economic, social, religious, and public institutions in their service regions.

522. Urban Geography. (3:3:0) (m) Hudman
Distribution of urban areas, their development, internal land use patterns, and functions in the world's economy.

533. Industrial Geography. (3:3:0) (m) Prerequisite: Geog. 231. Hudman
A systematic analysis of major industries in the United States, with emphasis on planning and industrial location theory.

580. Geography of Underdeveloped Areas. (2:2:0) (m) Prerequisite: consent of instructor.
Physical, economic, and human geography as it affects the world's underdeveloped areas, with emphasis on future development possibilities.

598. Seminar in Techniques of Research and Presentation. (2:2:0)
A proseminar in the scholarly use of geographical sources, leading to a substantial paper in oral and written form.

601. Physical Geography. (2:1:2) Grey

620. Cultural Geography. (2:1:2) Jackson

630. History and Philosophy of Geography. (2:2:0)

690R. Readings. (1:0:2 ea.)

695. Special Problems. (1-2:1-2:0)

698R. Seminar in Systematic Geography. (2:2:0 ea.)

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

Geology

Professors: Best, Bissell, Brimhall, Bullock, Bushman, Hamblin, Hintze, Petersen, Phillips (Chairman, 275 ESC), Rigby.
Associate Professors: Baer, Miller.

Geology offers an unusually wide variety of attractive career possibilities to students whose interests lie within the physical or life sciences. The graduate in geology may anticipate a position, with better-than-average pay, in the petroleum or the mineral industry, with a university, or with a governmental agency. He often enjoys opportunities for worldwide travel and for leadership in rapidly developing areas of geology, such as oceanography or environmental geology, with his choice of balance between outdoor field studies and indoor laboratory investigation.

The Department of Geology offers the bachelor's degree in geology, earth science, and geological engineering. The geology major consists of a well-balanced core curriculum leading to a professional career in geology. The earth science major is for prospective secondary school teachers and for others interested in geology but not planning a professional geology career. The geological engineering major leads to a professional degree.

Geology Major

The four-year program leading to the Bachelor of Science degree in geology requires of all students a standard core of geology courses representing all major phases of geology, with supporting work in chemistry, physics, mathematics, and biology. The nonspecialized curriculum is designed to provide maximum flexibility for early employment or a broad, well-rounded background for graduate study. The capable student is strongly encouraged to plan for study beyond the bachelor's degree and to select those elective courses which will strengthen his area of special interest.

It is expected that a student majoring in geology will have met the general entrance requirements of the College of Physical and Mathematical Sciences and will complete all general education requirements of Brigham Young University as outlined in the General Education Requirements section of this catalog. Each student seeking the bachelor of science degree in geology must successfully complete the following courses or their accepted equivalent at another institution:

Recommended Curriculum for the Bachelor of Science Degree in Geology

Freshman Year	F	W
Geol. 111, 112	4	4
Math. 110R*	3	2
Chem. 105 (or 111)†		4 (3)
Engl. 111	3	
Hist. 170		3
Bot. 105	3	
Physical education	½	½
Relig. 121, 122	2	2
Total hours	15½	15½

Sophomore Year	F	W
Chem. 106 (or 112)†		4 (3)
Geol. 351, 352	3	3
Math. 109 (or 112)†	4	
Physics 201, 202 (or 121, 122)	5 (3)	5 (3)
Physical education	½	½
Health 130	2	
Religion	2	2
Total hours	16½	14½

Junior Year	F	W	Sp.
Geol. 311	3		
Geol. 301, 310	1	1	
Geol. 312, 313, 410			7
Electives (or Math. 113)†	4		
Electives (or Physics 221, 222)	3	3	
Engl. 316		3	
Zool. 105 (or Bot.-Micro.-Zool. 201)††		3 (4)	
General education (Social science)	2	2	
Religion (upper division)	2		
Total hours	15	15	7

Senior Year	F	W
Geol. 451, 411**	3	3
Geol. 470, 460**	3	3
Geol. 480**		3
General education (Humanities)	3	3
Electives (or Zool. 202)††	4	3
Religion (upper division)	2	
Total hours	15	15

*Math. 110R is a modular course. Geology majors should take these modules:

Module 1 Fundamentals and functions	1.0 unit
Module 2 Palynominals	0.5 unit
Module 3 Exponential and logarthmic functions	0.5 unit
Module 5 Linear systems of equations	0.5 unit
Module 6 Trigonometry	2.0 units
Module 8 Coordinate geometry	0.5 unit

†A geology major is required to complete at least one year of college-level mathematics, chemistry and physics. He may select a high-level, rigorous route:

Math. 110R (5), 112 (4), and 113 (4)
Chem. 111 (3) and 112 (3)
Physics 121 (3), 122 (3), 221 (3), and 222 (3)
Or he may select a less rigorous route:
Math. 110R (5) and 109 (4)
Chem. 105 (4) and 106 (4)
Physics 201 (5) and 202 (5)

All students with special interest in mineralogy, petrology, geochemistry, or engineering geology should elect the more rigorous option and any student is advised that the rigorous option will hold open opportunities in graduate schools or professional employment.

††All students must complete at least 6 semester hours of biological sciences. A geology major is advised to select courses that will form a strong background for paleontology:
Bot. 105 (3) and Zool. 105 (3)

Students with special interest in paleontology should elect an alternate route:
Micro.-Zool. 201 (4) and Zool. 202 (4)

**Only four of the five senior geology courses (i.e., Geol. 411, 451, 460, 470, and 480) are required for graduation. Any major student may take all five if he so desires, or he may select only four in accord with his individual interests.

Geology Minor

Any student who has successfully completed 16 semester hours of any geology courses may request a minor in geology.

Earth Science Major

Earth science combines the more descriptive phases of geology with those of astronomy, meteorology, and geography for those who seek careers in secondary science education or those with nonprofessional aspirations in geology.

Teachers preparing in earth science must fulfill the requirements outlined below, including those courses required for state certification. Prospective teachers who plan to use geology as a composite major or minor should refer to the Education section of this catalog for the required curriculum.

All students majoring in earth science are required to take 52 credit hours from the following list of courses with a minimum in each group as follows: 20 hours in geology, 12 hours in physics, 8 hours in chemistry, 4 hours in mathematics, and 5 hours in geography. This leaves 3 hours for elective choice in any one of the 5 areas.

Geology: 104 (3), 111 (4), 112 (4), 311 (3), 312 (1), 313 (2), 351 (3), 352 (3), 410 (4), 460 (3), 470 (3), 480 (3), 502 (2) (this course for teachers only).
Physics and Astronomy: 127 (3), 137 (3), 100 (3), 110 (3), or 201 (5); and 202 (5) (10 hours).
Chemistry: 105 (4), 106 (4).
Geography: 101 (3), 211 (2), 401 (3).
Mathematics: 110 (4) or 111 (5).

Prospective earth science teachers are required to take Geol. 502 (2); Zool. 105 (3), 344 (4), 202 (4) or 203 (4); Bot. 101 (3), 105 (3), and 205 (3) or 210 (3).

It is recommended that earth science majors take the following classes in fulfilling the University general education group requirements: Geog. 101 and Archeol. 300.

For those intending to take additional classes in mathematics, chemistry, or physics, or who plan to secure a master's degree in any phase of science education, it is strongly recommended that Math. 112 and 113 be taken. Physics 211, 213, and 214 should be taken in preference to 100.

Students with a good background in biology who desire a stronger emphasis in zoology should take any combination of the following courses in place of Zool. 105 and 344: Zool. 202, 203, and 331. This would enable them, with the approval of advisers in geology and zoology, to have a wider selection of upper-division courses and 500- and 600-series courses if they do graduate work.

The following education courses must be taken by those wishing to fulfill state teaching requirements: Ed. 301 (2), 310 (2), 362 (3), 377 (3), 403R (4), 415 (2), 479 (8); for a total of 24 hours. (For additional information consult the Educational section of the catalog.)

Total hour requirements for graduation in earth science:

A. Earth Science Teaching Degree
52 hrs. major-minor
12 hrs. biological science
35 hrs. general education
23 hrs. education
6 hrs. electives

128 hrs (16 hrs./semester)

B. Terminal Degree in Earth Science
52 hrs. major-minor
41 hrs. general education
35 hrs. electives (upper div.)

128 hrs (16 hrs./semester)

Recommended Curriculum for the B.S. Teaching Degree in Earth Science

Freshman Year	F	W
Geol. 111		4
Math. 111	5	
Chem. 105, 106	4	4
Engl. 111, 316	3	3
Health 130	2	
Physical education	½	½
Relig. 121, 122	2	2
Geog. 101		3
Total hours	16½	16½

Sophomore Year	F	W
Geol. 112		4
Geol. 351, 352	3	3
Physics 100	3	
Hist. 170	3	
Geog. 211	2	
Physical education	½	½
Religion	2	2
Bot. 105		3
Electives	3	
Total hours	16½	12½

Junior Year	F	W
Geol. 502		2
Geog. 401	3	
Physics 127, 137	3	3
Zool. 105	3	
Religion	2	2
Ed. 301	2	
Ed. 410	2	
Ed. 377		3
Ed. 403R		4
Electives		3
Total hours	15	17

Senior Year	F	W
Bot. 205		3
Zool. 344		4
Religion (2nd block)	2	2
Ed. 415		2
Ed. 479 (1st block)	8	
Health 362		2
English literature (2nd block)	6	
Geology elective		4
Total hours	16	17

Engineering Geology Major

The curriculum for geological engineering is a four-year professional program leading to the degree of Bachelor of Science. It includes substantial amounts of mathematics, physics, and civil engineering aimed at training students for careers in industrial and environmental geology.

Required Curriculum for Engineering Geology

Freshman Year	F	W
Geol. 111 (or 330)	4 (3)	
Geol. 112		4
Engl. 111, 316	3	3
Math. 111, 112	5	4
Relig. 121, 122	2	2
Physical education	½	½
Health 130	2	
Social science elective		2
Total hours	16½(15½)	15½

Sophomore Year	F	W
Math. 113, 214	4	3
Chem. 105, 106	4	4
Physics 121, 122	3	3
Humanities elective	3	
Religion	2	2
Physical education	½	½
Hist. 170		3
Total hours	16½	15½

Junior Year	F	W
Geol. 351, 352	3	3
Geol. 311	3	1
Geol. 451		3
Math. 321	3	
Civ. Eng. 201		2
Physics 221, 222	3	3
Religion	2	2
Zool. 105 (recommended)		3
Social science elective	2	
Total hours	16	16

Summer, Junior Year	Sp
Geol. 312, 313, 410	7

Senior Year	F	W
Geol. 470, 460	3	3
Civ. Eng. 212	2	
Civ. Eng. 303, 332	3	3
Civ. Eng. 341, 431	3	3
Religion	2	2
Bot. 105	3	
Electives (humanities and social science)		6
Total hours	16	17

Suggested elective courses, as the student's schedule permits: Ag.Hrt. 282, 303; Geol. 411, 515, 520, 535, 540, 561, 562, 563.

Graduate Study

The Department of Geology offers graduate study leading to the Master of Science and Doctor of Philosophy degrees in geology within five major areas of specialization: paleontology; stratigraphy and sedimentation; structural and field geology; mineralogy, geochemistry, and petrology; and economic geology. In addition, the Master of Arts degree in earth science is available.

It is assumed that any student seeking any graduate degree in geology at Brigham Young University will have had undergraduate preparation essentially equivalent to that required by the Geology Department of BYU; otherwise, remedial undergraduate work may be required.

For details concerning graduate study in geology at Brigham Young University, see the **Graduate School Catalog.**

Courses

101. Introduction to Geology. (2:2:0) Home Study also. (G-PS m)
A cultural focus in physical geology for nonscience students. May be taken with or without Geol. 102.

102. Introduction to Geology Laboratory. (1:0:2) (G-PS m)
Common rocks and minerals laboratory, including local field trips.

103. Life of the Past. (3:3:0) Home Study also. (G-PS m)
A cultural focus on historical geology for nonscience students. Fossils studied in laboratory.

104. Environmental Geology. (3:2:2) (G-PS m) Baer, Brimhall
A cultural course emphasizing geological and environmental consequences of urban development and industrial pollution.

111. Physical Geology. (4:3:2) (G-PS m) Hamblin
Materials, structure, and surface features of the earth and the geologic processes involved in their development.

112. Historical Geology. (4:3:2) (G-PS m) Prerequisite: Geol. 111. Hintze
Concepts of geologic history applied to North American continental development.

301. Computer Applications in Geology. (1:0:2) (G-PS m) Prerequisite. Math. 106 or 111. Brimhall
A survey of the use of computers in the science of geology.

305. Rocks and Minerals. (2:2:0) (m) Bullock
Origin, classification, and identification of the earth's common raw materials. For nonmajors.

306. Landforms and Their Origin. (3:3:0) Home Study also. (G-PS m) Prerequisite: Geol. 101 or 111. Bushman
The earth's landscape features and their origin. For nonmajors.

310. Geologic Illustration. (1:0:2) (G-PS m) Prerequisite: completion of or concurrent registration in Geol. 311. Rigby
Preparation of geologic illustrations using a variety of media, leading to publishable illustrative material.

311. Structural Geology. (3:2:2) (G-PS & ML) Prerequisites: Geol. 352, Math. 111. Baer
Explanation and nomenclature of structural features of the earth's crust and practice in interpreting geologic maps.

312. Geological Literature and Scientific Report Writing. (1:1:0) Prerequisite: successful completion of the Junior English Proficiency Exam. Hintze
Indexes and sources of geologic information. Preparation of professional geologic reports.

313. Geologic Methods. (2:1:2) (G-PS) Prerequisite: Geol. 311. Bissell
Practice in methods of geologic fieldwork and use of field instruments.

330. Geology for Engineers. (3:2:3) (G-PS) Brimhall
Geological processes and materials bearing on engineering practices.

351. Mineralogy. (3:2:2) (G-PS m) Prerequisite: completion of or concurrent registration in Chem. 105 or 111. Phillips
Physical and crystallographic properties of minerals, with practice in identification of common rock-forming minerals.

352. Petrology. (3:1:4) (G-PS) Prerequisites: Geol. 351, completion of or concurrent registration in Chem. 106 or 112. Best, Hamblin
Investigation of rocks in the field and laboratory by hand specimen and thin-section.

410. Summer Field Camp. (4:0:40) Prerequisite: Geol. 313.
A five-week summer field camp in geologic mapping. Required of all geology and geological engineering majors.

411. Geomorphology. (3:2:2) (G-PS m) Prerequisite: Geol. 112. Hamblin
Interpretive analysis of landforms and their geologic and environmental significance.

451. Optical Mineralogy. (3:2:2) (G-PS) Prerequisite: Geol. 351. Phillips
Fundamentals of optical crystallography and mineral identification techniques using the petrographic microscope.

460. Economic Geology. (3:2:2) (G-PS) Prerequisite: Geol. 352. Bullock
Principles, genesis, and localization of ore deposits, including laboratory study of ore minerals.

470. Stratigraphy and Sedimentation. (3:2:2) (G-PS) Prerequisite: Geol. 352. Bushman
Sediments, sedimentary rocks, and principles of stratigraphy.

480. Introduction to Paleontology. (3:2:2) (G-PS) Prerequisite: Geol. 112. Petersen
Distribution, morphology, paleoecology, evolution, and stratigraphic significance of organisms in the geologic record.

502. Geology for Teachers. (2:2:0) (m) Prerequisite: Geol. 101 and 102, or 103, or 111. Bushman
Designed to aid junior and senior high school earth science teachers. Materials and methods useful for the classroom.

507. History of Geology. (2:2:0) Bushman
Historical development of concepts and philosophy distinctive to geology. Offered 1974-75 and alternate years.

510. Conducted Field Trips. (1-3:Arr.:Arr.) Prerequisite: Geol. 101, 103, or 111.
Visits to and explanations of a variety of geologic features spectacularly displayed in the Intermountain West. Credit varies with number and length of trips in which the student participates, but, in general, 30 hours will be spent in the field for each credit hour. Maximum credit allowable is 3 hours.

512. Geology of North America. (4:3:2) Rigby
A region-by-region study of the areal geology, physiography, and geologic development of Canada, the United States, and Mexico.

515. Photogeology. (3:1:4) Hintze
Techniques useful to practicing geologists; use of parallax bar and various instruments applicable to contact print photos.

520. Petroleum Geology. (5:4:2) Baer
Offered 1975-76 and alternate years.

535. Groundwater. (4:4:0) Hintze
Offered 1974-75 and alternate years.

540. Plate Tectonics. (3:3:0) Best
Survey of physics of earth's interior and its bearing on plate tectonics. Offered 1975-76 and alternate years.

544. Geochemistry Laboratory. (2:1:2) Prerequisite: consent of instructor. Brimhall
Use of spectroscopic instruments for acquisition of chemical and isotopic data on geological materials.

545. Geochemistry. (3:3:0) Prerequisite: consent of instructor. Brimhall
Geological materials and processes from a chemical point of view. Offered 1974-75 and alternate years.

551. Advanced Mineralogy. (3:2:2) Prerequisites: Geol. 351 and 451; Physics 202 or 213. Phillips
Crystallography, structure and crystal chemistry of major mineral groups studied by X-ray diffraction and other methods.

552. Igneous and Metamorphic Petrography. (3:1:4) Prerequisites: Geol. 352 and 451. Best
Bearing of textures and mineral associations on history of rock bodies.

561. Ore Deposits. (4:4:0) Prerequisite: Geol. 460. Bullock
Metallic ore deposits—their origin, classification, and distribution, emphasizing major ore deposits of the United States.

562. Industrial Minerals and Rocks. (3:3:0) Prerequisite: Geol. 460. Bullock
Occurrence, distribution, and use of nonmetallic earth materials. Offered 1974-75 and alternate years.

563. Mining Geology. (3:3:0) Prerequisite: Geol. 460. Bullock
Ore search and appraisal; assembling geological data; mining techniques; ore treatment. Offered 1975-76 and alternate years.

574. Principles of Stratigraphy. (3:3:0) Prerequisite: Geol. 470. Bissell
Offered 1974-75 and alternate years.

575. Precambrian and Paleozoic Stratigraphy. (3:3:0) Hintze
Synthesis of regional stratigraphic relations in North America. Offered 1974-75 and alternate years.

576. Mesozoic and Cenozoic Stratigraphy. (3:3:0) Rigby
North American Mesozoic and Cenozoic rocks and key fossils. Offered 1974-75 and alternate years.

577. Oceanography. (3:3:0) Prerequisite: Geol. 470. Hamblin
Oceanic processes, shoreline topography sedimentary patterns, and sea floor features. Offered 1975-76 and alternate years.

580. Invertebrate Paleontology (Protozoans through Brachiopods). (4:3:2) Rigby
Morphology, paleoecology, evolution, and stratigraphic significance of invertebrates. Offered 1975-76 and alternate years.

581. Invertebrate Paleontology (Mollusks through Hemichordates). (4:3:2) Petersen
Continuation of Geol. 580. Offered 1975-76 and alternate years.

582. Biostratigraphy. (3:2:2) Prerequisite: Geol. 480 or 581. Petersen
Fossils in their stratigraphic setting and principles of paleontologic chronology. Offered 1975-76 and alternate years.

583. Palynology. (3:2:3) Prerequisites: Bot. 105, Geol. 480. Bushman
Modern and fossil palynomorphs—their preparation and identification and application to stratigraphic and paleoecologic problems. Offered 1974-75 and alternate years.

584. Vertebrate Paleontology. (4:3:2) Prerequisites: Geol. 112 or 103; Zool. 105 or Bio. Agr. Ed. 201. Miller
A history of vertebrate fossils and the environments they occupied. Field trips required.

591R. Seminar. (1:1:0 ea.)

655. Igneous Petrology. (4:3:2) Prerequisite: Geol. 552. Best

656. Metamorphic Petrology. (3:2:3) Prerequisite: Geol. 552. Best

670. Sedimentation and Sedimentary Tectonics. (3:2:2) Bissell
Offered 1976-77 and alternate years.

671. Sedimentary Petrology—Carbonate Rocks. (3:2:2) Bissell
Offered 1976-77 and alternate years.

672. Sedimentary Petrology—Clastic Rocks. (3:2:2) Prerequisite: Geol. 470. Hamblin
Offered 1975-76 and alternate years.

680. Micropaleontology. (3:2:2) Prerequisite: Geol. 480 or 581. Rigby
Offered 1976-77 and alternate years.

685. Paleoecology. (4:3:2) Prerequisite: Geol. 480 or 581. Rigby

696. Reading and Conference in Geology. (1-4:1-4:0)

697R. Directed Field Studies. (1-6:Arr.:Arr. ea.)

698. Research. (1-4:1-4:0)

699. Thesis for Master's Degree. (6-9:Arr.:Arr.) (m)

797R. Directed Field Studies. (1-6:Arr.:Arr. ea.)

799. Dissertation for Doctor of Philosophy Degree. (Arr.)

Health Sciences

Professors: Shaw, Watters (Chairman, 213 RB).
Associate Professors: Burgener, Hafen, Heiner, Rhodes, Robison, Rollins, Thygerson.
Assistant Professors: Hirschi, Hurley, James, Petersen, Salazar, Tuckett.
Instructors: Coon, Karren.

Associate Degree in Public Health

The Department of Health Sciences has the administrative responsibility for this interdisciplinary two-year degree in public health. The degree is earned upon completion of at least 32 hours of general education requirements and 32 hours of public health curriculum selected in consultation with an adviser.

The public health curriculum consists of both core-area and specialty-area classes. The core classes include at least 18 hours from Health 451, 551, and any of the following: Health 121, 325, 460, 501R; Anthrop. 320; Org. Behav. 321; Sociol. 329, 357; Geog. 301; and Zool. 261. The specialty-area classes include at least 12 hours from one of the following areas:

Alcohol—Health 260, 465, 503R; CDFR 210; Sociol. 360, 362, 364.

Mental Health—Health 260, 465, 503R; Sociol. 360, 389; Psych. 111, 240, 440.

Nutrition—FSN 110, 115, 310, 340, 400; FEHM 170; An. Sci. 121; AgHrt. 151.

Sanitation—Micro. 311, 361, 381, 411; Physics 137; Bot.-Zool. 250, Sociol. 330.

Indian Program

The associate degree in public health listed above is designed especially for the needs of Indian students and their reservation communities; however, the same degree is available for other students. It will emphasize fieldwork and other off-campus experiences.

Health Science Teaching Major. Required courses: Health 325, 381, 430, 451, 460, 552; also the following courses or their equivalents from other departments: FSN 115, Zool. 261 and 260, Psych. 321; and at least 8 credit hours from the following courses: Health 370, 465, 501R or 503R, 561, 660; Micro. 311; Sociol. 329, 340; Psych. 240, 440. The student's program is to be established through consultation with an assigned adviser from the Department of Health Sciences.

Health majors may substitute Health 552 for Health 362 for certification. It is recommended that Ed. 402 and Psych. 321 be used to fulfill the certification requirements.

Health Sciences Minor. Required courses: Health 377, 381*, and 14 hours selected from the following courses: Health 325, 370, 430, 451, 460, 465, 501R or 503R, 552**, 561; FSN 115; Micro. 311; and Psych. 240, 321.

*If Health 381 is required in the student's major program, the health science minor will be 17 hours.

**Health sciences minors may substitute Health 552 for 362 for certification requirements.

Driver and Safety Education Minor. A student may minor in Driver and Safety Education and qualify for state certification by completing the following required courses: Health 121 or 430, 325, 444, 445, 446; and 4 credit hours selected from the following courses: Health 460, 502R, 525; Psych. 321; Ed. 406. The driver education program is established by the State of Utah Certification Office and cannot be altered or have other courses substituted unless the course agrees with a reciprocal list from other state universities. **Health Education major courses cannot be used in both a Driver Education minor and a Health Education major.**

Health Sciences: Community Health Education Emphasis. Those students who intend to pursue public health courses and obtain higher degrees from an accredited and approved school of public health or who intend to specialize in allied health fields should contact the Health Sciences Department for consultation and advisement.

Required courses: Health 325, 370, 430, 451, 460, 465, 551, 561; Zool. 261; Micro. 411; Org. Behav. 321; Sociol. 205; Psych. 460; FSN 115; and 9 hours selected from the following courses: Psych. 365; Sociol. 329, 360, 362, 370, 430; Comms. 211; Pol. Sci. 311.

Suggested electives: Health 552; Sociol. 389; Bot. 370, 372 (or Zool. 371); Pol. Sci. 330; Physics 100; Ed. 406.

Environmental Health Science. Students who pursue a degree in health sciences with an environmental health emphasis will be prepared to obtain employment with public health or private agencies in the fields of environmental protection (i.e., general sanitation, air pollution, water pollution, occupational health, etc.) or to pursue an advanced degree from an accredited or approved School of Public Health. The student program is to be established through consultation with an assigned adviser in the Health Sciences Department.

Required courses: Chem. 102-103 or 105-106; Physics 137; Health 325, 425, 451, 551, 561; Zool. 261, 317, 331; Micro. 311, 321, 361, 381, 411; Comms. 335; Org. Behav. 321; Sociol. 471; Bot.-Zool. 250.

Elective courses: Health 430, 465, 552; Social. 329, 360; Comms. 211; Pol. Sci. 311, 330.

Suggested Two-Year Course Outline: Associate Degree

Alcohol (64)

First Year	F	W
Health 130, 460	2	2
Health 121, 325	2	2
Engl. 111, 215	3	3
Chem. 100	3	
Sociol. 112		3
Sociol. 360		3
Hist. 170	3	
Religion	2	2
Physical education	½	½
	15½	15½

Second Year	F	W	S
Health 465, 260	2	2	
Health 451, 551		2	6
Sociol. 362, 364	3	3	
Org. Behav. 321	3		
Geog. 301	2		
Humanities	3		
Microbiology		3	
Religion	2	2	
	15	12	6

Mental Health (65)

First Year	F	W
Health 130, 460	2	2
Health 121, 325	2	2
Engl. 111, 325	3	3
Chem. 100	3	
Psych. 111		3
Sociol. 112		3
Hist. 170	3	
Religion	2	2
Physical education	½	½
	15½	15½

Second Year	F	W	S
Health 465, 260	2	2	
Health 451, 551		2	6
Psych. 240	2		
Sociol. 360, 351	3	3	
Org. Behav. 321		3	
Micro. 121		3	
Humanities	3		
Geog. 301	2		
Religion	2	2	
	14	15	6

Nutrition (64)

First Year	F	W
Health 130, 121	2	2
Engl. 111, 215	3	3
Hist. 170	3	
Chem. 102		5
Sociol. 112	3	
FSN 110, 115	2	2
Religion	2	2
Physical education	½	½
	15½	14½

Second Year	F	W	S
Health 460		2	
Health 451, 551		2	6
Micro. 121		3	
Humanities	3		
Geog. 301	2		
Zool. 261	4		
FSN 400, 340	2	2	
FSN 310		2	
FEHM 170		2	
Religion	2	2	
	13	15	6

Sanitation (64)

First Year	F	W
Health 130	2	
Health 325	2	
Engl. 111, 215	3	3
Hist. 170	3	
Micro. 121		3
Micro. 311		2
Chem. 102		5
Sociol. 112	3	
Religion	2	2
Physical education	½	½
	15½	15½

Second Year	F	W	S
Health 121		2	
Health 451, 551		2	6
Zool. 261	4		
Zool. 250	3		
Geog. 301	2		
Physics 137	3		
Humanities		3	
Micro. 381		2	
Micro. 411		2	
Religion	2	2	
	14	13	6

Suggested Four-Year Course Outline: Teaching Major

First Year	F	W
Engl. 111	3	
Zool. 105		3
Religion	2	2
Physical education	½	½
Health 130	2	
Hist. 170		3
Math. 105	3	
Micro. 121	3	
Sociol. 111		3
Psych. 111		3
	13½	14½

Second Year	F	W
Engl. 212	3	
Religion	2	2
Physical education	½	½
Zool. 260, 261		6
Health 325	2	
Hum. 101	3	
Chem. 105	4	
FSN 115		2
Minor	2	4
Ed. 301		2
	16½	16½

Third Year	F	W
Psych. 321		3
Health 370, 552		4
Religion	2	2
Health 377, 381, 451, 460	10	
Sociol. 340		2
Micro. 311		2
Minor	2	4
Elective	2	
	16	17

Fourth Year	F	W
Ed. 410, 415, 479	12	
Ed. 402		2
Health 430, 561		6
Minor	2	6
Religion	2	
Electives		2
	16	16

Suggested Three-Year Course Outline: Teaching Major

First Year	F	W	Sp	Su
Chem. 105		4		
Ed. 301				2
Engl. 111	3			
FSN 115	2			
Health elective	2			
Health 130	2			
Health 325		2		
Hist. 170			3	
Hum. 101			3	
Math. 105		3		
Micro. 121	3			
Physical education	½	½		½
Psych. 111			3	
Religion	2	2	2	
Sociol. 111	3			
Zool. 105		3		
Minor		2		2
	17½	16½	11	4½

Second Year	F	W	Sp	Su
Ed. 410		2		
Ed. 402				2
Engl. 212	3			
Health 381	3			
Health 451	2			
Health 460		2		
Health 552	2			
Health electives	3	3	2	
Physical education	½			
Psych. 321			3	
Religion	2	2		
Zool. 261		4		
Zool. 260		2		
Minor	2		4	4
Elective				2
	17½	15	9	8

Third Year	F	W
Ed. 415		2
Health 370		2
Health 377	3	
Health 479		8
Health 430	3	
Religion	2	2
Minor	8	
	16	14

Suggested Course Outline: Health Sciences—Community Health Education

First Year	F	W
Chem. 102-103		6
Engl. 111	3	
Health 130	2	
Hist. 170		3
Math. 105	3	
Physical education	½	½
Physical science	3	
Psych. 111		3
Religion	2	2
Sociol. 111	3	
Comms. 102	2	
Zool. 105		3
	18½	17½

Second Year	F	W
Comms. 101	2	
Engl. 316	3	
FSN 115		2
Humanities	3	
Micro. 121	3	
Org. Behav. 321		3
Physical education	½	½
Religion	2	2
Zool. 261		4

Sociol. 205		3
Comms. 211	3	
Related electives		2
	16½	16½

Third Year	F	W
Comms. 335	3	
Health 370	2	
Health 451		2
Health 460		2
Health 465	2	
Psych. 460		3
Religion	2	2
Related electives	4	3
Electives	3	4
	16	16

Fourth Year	F	W
Health 325	2	
Health 430	3	
Health 551		2
Health 561	3	
Micro. 411	2	
Religion	2	
Electives	6	12
	18	14

Suggested Course Outline: Environmental Health Science

First Year	F	W
Chem. 102-103		6
Engl. 111	3	
Health 130	2	
Hist. 170		3
Math. 105	3	
Physics 137	3	
Physical education	½	½
Psych. 111		3
Religion	2	2
Sociol. 111	3	
Zool. 105		3
	16½	17½

Second Year	F	W
Engl. 316	3	
Religion	2	2
Org. Behav. 321		3
Comms. 101		2
Health 325	2	
Micro. 311	2	
Physical education	½	½
Bot.-Zool. 250	3	
Zool. 261		4
Humanities	3	
Electives	2	3
	17½	14½

Third Year	F	W
Comms. 335	3	
Health 425		3
Health 451	2	
Micro. 361		3
Religion	2	2
Comms. 102	2	
Zool. 317		3
Zool. 331	4	
Electives		6
Sociol. 205	3	
	16	17

Fourth Year	F	W
Health 551		2
Health 561	3	
Micro. 381		2
Micro. 411		2
Religion	2	
Sociol. 430 or 370	3	
Electives	9	8
	17	14

Courses

10. Beginning Driver Education. (0:2:2) Thygerson
Qualifies the student for Utah driver's license. No driving experience necessary. Fee required.

☐**Physics 100. Fundamentals of Physics.** (3:3:0)

☐**Food Science and Nutrition 115. Essentials of Nutrition.** (2:2:0)

121. First Aid and Safety Instruction. (2:2:0) Home Study also. (m) Petersen
Emergency procedures for illness and traumatic injuries. Designed for American Red Cross Standard course instructors rating.

130. Personal Health. (2:2:0) Home Study also.
Development of a knowledge of desirable health behavior. Required of all students during the freshman year.

☐**Sociol. 205. Applied Social Statistics.** (3:3:0)

☐**Communications 211. News Writing.** (3:2:3)

☐**Psych. 240. Personal and Social Adjustment.** (2:2:0)

260. Techniques of Alcoholism Rehabilitation. (2:2:0) Slater
A study of alcoholism programs and treatment techniques used in the successful rehabilitation of alcoholics.

☐**Microbiology 261. Food and Dairy Microbiology.** (3:2:3)

☐**Zoology 261. Elementary Human Physiology.** (4:3:2)

☐**Zoology 262. Elementary Human Anatomy.** (2:1:2)

☐**Microbiology 311. Sanitation and Public Health.** (2:2:0)

☐**Zoology 317. Human Parasitology.** (3:2:3)

☐**Organizational Behavior 321. Fundamentals of Organizational Behavior.** (3:3:0)

☐**Psychology 321. Psychology of Adolescence.** (3:3:0)

325. Safety Education. (2:2:0) Home Study also. (m) Thygerson
A general safety course, emphasizing the principles and instruction of accident loss reduction.

☐**Sociology 329. Medical Sociology.** (3:3:0)

☐**Microbiology 331. Microbiology.** (5:3:6)

☐**Zoology 331. Introductory Entomology.** (4:2:4)

☐**Communications 335. Public Relations.** (3:3:0)

☐**Sociology 360. Introduction to the Field of Social Work.** (3:3:0)

361. School Health for Elementary Teachers. (3:3:0) Home Study also.
The personal health of the elementary teacher, with emphasis on his role as a health educator, and an appraisal of health programs of the elementary student.

362. School Health for Secondary Teachers. (2:2:0) Home Study also.
Certification course. Fundamental principles of the secondary school health program and adolescent health problems encountered by teachers.

370. Consumer Health. (2:2:0)
Analysis of current consumer health issues: selection of health products and services; and sources of consumer health protection.

☐**Botany 370. Introduction to Genetics I.** (2:2:0)

377. Secondary Teaching Curriculum and Methods. (3:3:1) Prerequisites: Health 381, Ed. 301B.

Certification course. Teacher and student activities required for conceptual learning methods in health science. Fourteen hours of observation and participation recommended.

381. Secondary Health Education Curriculum. (3:3:0) (m) Watters

Emphasizes courses of study in health, with special program planning and health course content review.

☐**Sociology 389. Social Aspects of Mental Health.** (3:3:0)

425. Occupational and Industrial Health. (3:2:1) Burgener

An analysis of the causal relationships of the work environment to disease and safety of employees.

430. Advanced First-Aid Instructorship. (3:2:2) Petersen

Qualifies students to become instructors for Standard, Advanced Red Cross courses for emergency care procedures.

☐**Psychology 440. Abnormal Psychology.** (3:3:2)

444. Organization and Administration of Driver and Traffic Safety Education. (2:2:0) Home Study also. (m) Coon

Organization, administration, and supervision of high school driver education programs.

445. Driver and Traffic Safety Education. (4:2:4) (m) Prerequisite: Health 444. Coon

Student teaching in the classroom and behind-the-wheel phases of driver education.

446. Driver Simulators and Driving Ranges. (2:2:1) Coon

Simulator and multiple-car driving range methodology, with emphasis on operation and maintenance.

451. Community Health. (2:2:0) Home Study also. Recommended: Health 361 or 362. Burgener

Individual school and community involvement in preventing disease, improving human efficiency, and prolonging life.

460. Drug Use and Abuse. (2:2:0) Home Study also. Hafen, Hurley

The physiological, psychological, sociological, and legal implications of drug use and abuse, with emphasis on nature, cause, treatment, and prevention.

465. Health and Self-Destructive Behavior. (2:2:0) Home Study also. (m) Hafen

An etiological and preventive approach to suicidal and self-destructive behavior. For health educators and other allied health personnel.

☐**Zoology 465. Mammalian Physiology.** (4:3:3)

479. Secondary Student Teaching. (8:8:0) Hurley

☐**Microbiology 501. Pathogenic Microbiology.** (5:3:6)

501R. Health Education Workshop. (1-3:Arr.:Arr. ea.) Watters

A presentation of selected health education problems, followed by discussions. Conducted on a workshop basis.

502R. Driver and Safety Education Workshop. (1-3:Arr.: Arr. ea.) Prerequisite: certified driver education instructor or consent of department chairman. Thygerson

Presentation of current safety education problems, research, and methods of instruction.

503R. Health Problems Workshop. (1-3:Arr.:Arr. ea.) Watters

Current problems in school and community health.

525. Countermeasures for Accident Control. (2:2:0) Thygerson

Magnitude of the accident problem, epidemiology, role of public agencies, and evaluation of countermeasures for accidents.

☐**Microbiology 531. Virology.** (4:2:6)

☐**Zoology 535. Medical Entomology.** (2:1:2)

☐**Education 550. Introduction to Guidance Services.** (2:2:0)

551. Fieldwork in Community Health. (Arr.:Arr.:Arr.) Prerequisite: consent of instructor. Burgener

Designed to broaden understanding of community health agencies, their roles, programs, and relationships.

552. School Health, Organization, and Services. (2:2:0) Hurley, Peterson

Considers desirable school health services, functions, and relationships to public education and educational law. Coordinates school health services with community programs.

☐**Statistics 552. Statistical Methods in Education I.** (3:3:0)

☐**Education 560. Educational Tests and Measurements.** (3:3:0)

561. Health of the Body Systems. (3:3:0) (m) Prerequisite: Zool. 261. Rhodes

Advanced course in personal health, dealing with the major factors in health and disease as they involve the several body systems.

☐**Physical Education 635. Research Design in Physical Education.** (2:2:1)

☐**Education 648. Laboratory in Counseling Practice.** (1:0:2)

650. Preservation of Human Health. (3:3:0) (m) Prerequisite: Health 451 or equivalent. Hafen

Offered 1975 and alternate years.

651. Community Organization for Health. (3:3:0) (m) Hurley

660. Body Responses to Health and Disease. (2:2:0) Prerequisite: Health 561 or equivalent. Rhodes

☐**Physical Education 662. Administration and Public Relations.** (3:3:0)

☐**Zoology 662. Advanced Physiology I.** (2:1:2)

670. Environmental Health. (2:2:0) (m) Burgener

Offered 1976 and alternate years.

671. Graduate Practicum. (1:1:0) Watters

672. Social Hygiene. (2:2:0) (m) Heiner

Offered 1976 and alternate years.

692. Research Methods in Health Science. (3:3:0) Shaw

694. Seminar in Readings. (2:2:0) Watters

696R. Independent Studies. (1-3:Arr.:Arr. ea.) Watters

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

☐**Education 709. Comprehensive Planning in Education.** (3:2:2)

History

Professors: Addy, Alexander, Allen, Arrington, Campbell, Hyer, Jensen, Warner (Chairman, 250 MSRB).

Associate Professors: Britsch, Cardon, Flammer, Hill, Marlow, Tobler.

Assistant Professors: Chandler, Fox, Holmes, Montgomery, Pixton, Seibt, Stewart, Thorp, Wood.

The History Department offers preparation for careers in teaching, law, business, government service, or graduate work in history. A study of history through careful analysis of past civilizations and problems in context provides insights into the problems of today and fosters a greater appreciation of the world about us. History offers a corrective to the tendency to view problems from a simplistic or narrow perspective; for history is, above all, a humanizing and broadening experience, and a discipline that helps us distinguish the important from the transient and discover what really matters in our existence. It is the role of historians, furthermore, to preserve our great cultural heritage and to help interpret it for the improvement of present and future generations.

The History Department provides instruction leading to the B.A., M.A., and Ph.D. degrees.

Requirements for a Major in History

Students may study Asian, European, Latin American, or United States history, but must not present all of their preparation in a single area. In order to encourage students to broaden their course work, it is required that at least one upper-division course each from the Americas, Asia, and Europe be included in the program.

A history major requires the completion of 35 hours of work in the field. Courses required are Hist. 100 (to be taken first semester as a history major), 110, 111, 170 (or 120 and 121), and 270, taken in the freshman and sophomore years. Majors who seek certification in secondary education are required to take Hist. 466. Hist. 488 is required for those students who intend to pursue graduate study in history; it is recommended for others also, especially for prospective high school teachers. Hist. 490 is required of all majors and should be taken during the senior year. The remaining elective hours should be selected in consultation with a department adviser. Not more than 17 hours of lower-division work in history may be applied toward the major. No D credit will be accepted in upper-division history classes.

History majors are required to take the foreign language option rather than the mathematics-statistics-logic-science option for general education. Any exception to this must be approved by the history department chairman. Students, for example, who are planning careers in areas emphasizing the sciences or requiring statistical methods should contact the chairman to work out an alternative program.

A minor field is not required for the history major. In its place the student shall select 15 hours of supporting classes (other than history) from among the basic courses in the Colleges of Social Sciences or Humanities.

The requirements for a teaching major or minor in history and for the composite major in social sciences, which includes history, are found in the Education section of this catalog.

Requirements for a History Minor

A departmental minor in history consists of 20 hours of work, including Hist. 110, 111, 170, 270, plus 8 hours of upper-division course work.

Courses

100. The Study of History. (2:1:1) (m)
Introduction to nature and functions of history, with emphasis on developing skills and resources needed in historical study. History majors and minors only.

110. World Civilization I. (3:3:0) Home Study also. (G-SS m)
Beginnings of major world civilizations and their development to approximately A.D. 1500, with emphasis on Europe.

111. World Civilization II. (3:3:0) Home Study also. (G-SS m)
Development of major world civilizations since A.D. 1500, with emphasis on Europe.

120. The United States to 1865. (3:3:0) Home Study also. (G-SS m)
Discovery, colonization, American Revolution, establishment of the Constitution, foreign affairs, westward expansion, sectionalism, and Civil War.

121. The United States since 1865. (3:3:0) Home Study also. (G-SS m)
Civil War, Reconstruction, industrialization, urbanization, imperialism, progressivism, world wars, New Deal, and current problems.

170. The American Heritage. (3:3:0) Home Study also. (G-AH)
Growth of the United States, with emphasis on the Constitution, development of political ideas, and institutions; America's role as an industrial and world power.

270. Main Issues in American History. (3:3:0) (G-SS)
Prerequisite: Hist. 170 or equivalent.
Discussion based on directed readings of main issues confronting the United States today. Limited to history majors and minors.

300. Ancient Near East. (3:3:0) (G-SS m) Montgomery
Ancient Egypt, Mesopotamia, Palestine, and Persia from ca. 3500 B.C. to A.D. 600.

302. Medieval and Modern Near East. (3:3:0) (G-SS m) Montgomery
Rise and spread of Islam during the period of the Caliphate. The Ottoman Empire. Western imperialism. Rise of national states.

304. Greek History and Civilization. (3:3:0) Home Study also. (G-SS m)
Survey of Hellenic and Hellenistic developments from early beginnings to the Roman conquest.

307. Roman History and Civilization. (3:3:0) (G-SS m)
Survey of the rise of the Roman Republic, the transition to empire, and the decline and fall of the Western Roman Empire.

310. The Early Middle Ages. (3:3:0) (G-SS m) Pixton
Surveys the development of medieval history and civilization from the fall of Rome to the Romanesque revival of the tenth and eleventh centuries.

311. The Late Middle Ages. (3:3:0) Home Study also. (G-SS m) Pixton
Surveys the development of medieval history and civilization from the eleventh century to the close of the Middle Ages.

312. The Renaissance: Age of Transition. (3:3:0) (G-SS m) Jensen
The literary and artistic reawakening of Italy and Europe; the commercial revolution; the rise of national monarchies.

313. The Reformation: Age of Turmoil. (3:3:0) (G-SS m) Jensen
The sixteenth century religious upheaval, with its resulting ideological, cultural, political, and socioeconomic struggles to mid-seventeenth century.

320. The Age of Enlightenment. (3:3:0) (G-SS m) Addy, Seibt
Developments in Europe from 1650 to the French Revolution; emphasis on political thought, science, and philosophy in the Enlightenment.

322. Nineteenth-Century Europe. (3:3:0) (G-SS m) Cardon
Political, economic, social, and intellectual history of Europe from 1815 to 1914.

323. Europe in the Twentieth Century. (3:3:0) Home Study also. (G-SS m) Cardon
International affairs, political and economic history of major European countries (including Russia) from World War I to the present.

326. Western Civilization I. (1-3:Arr.:Arr.) Home Study also. (G-SS m)
Limited to participants in the BYU Travel Study program.

327. Western Civilization II. (1-3:Arr.:Arr.) Home Study also. (G-SS m)
Limited to participants in the BYU Travel Study program.

329. The Austrian Empire and Eastern Europe. (3:3:0) (G-SS m) Holmes
Survey of the historical development of the countries of East Central Europe (Austria, Hungary, Czechoslovakia, Poland) since 1526.

330. Tsarist Russia. (3:3:0) (G-SS m) Holmes
Survey of Russian history from early beginnings to the Russian Revolution.

331. The USSR and Eastern Europe. (3:3:0) Home Study also. (G-SS m) Holmes
Survey of modern Russia, with special emphasis on the rise of communism and the development of the USSR.

332. France. (3:3:0) Home Study also. (G-SS m) Cardon
French history from Roman times to the present, with emphasis on the French Revolution, Napoleon, and subsequent developments.

333. Modern Germany. (3:3:0) Home Study also. (G-SS m) Tobler
Survey of the political, military, economic, and cultural development of Germany during the nineteenth and twentieth centuries.

334. Spain. (3:3:0) (G-SS m) Addy
Political, social, and economic factors in Spanish history. Emphasis on the period since 1492.

335. England. (3:3:0) Home Study also. (G-SS m) Thorp
English history from Roman era to present; legal and political institutions, Empire-Commonwealth, industrial revolution, recent problems, trends.

340. Premodern Asia. (3:3:0) (G-SS m) Britsch
Beginning of the traditional civilizations of China, India, and Japan, and their development until the coming of the West.

341. Modern Asia. (3:3:0) Home Study also. (G-SS m) Britsch
Impact of the West on Asian societies; emphasis on change of tradition, imperialism, nationalism, communism, in China, Japan, and India.

342. Korea. (3:3:0) (G-SS m) Palmer
Survey of the history of Korea, including its political, religious, and cultural development from antiquity to the present.

343. Formative Period of Chinese Civilization. (3:3:0) (G-SS m) Hyer
Development of China to recent times, with emphasis on social and cultural factors.

344. Modern China. (3:3:0) Home Study also. (G-SS m) Hyer
Developments in China with coming of the West, stressing such movements as reform, rebellion, rise of nationalism, and change of traditional institutions.

345. Premodern Japan. (3:3:0) (G-SS m) Britsch
Development of Japan to 1868, with emphasis on social, religious, and cultural aspects.

346. Modern Japan. (3:3:0) (G-SS m) Hyer
The development of Japan following its opening in 1853, with emphasis on the process and implications of modernization and expansion.

347. India. (3:3:0) (G-SS m) Britsch
Survey of the history of India, including the effects of Hinduism and Islam on the political, economic, and cultural development.

348. Southeast Asia. (3:3:0) (G-SS m) Britsch
Survey of Southeast Asia, including ancient influences of India and China, with emphasis upon the modern period.

349. Asiatic Russia. (3:3:0) (G-SS m) Montgomery
Period from 500 B.C. to the twentieth century: Turkic and Mongolian nomadic empires; Russian expansion to borders of China and Middle East.

351. History of Latin America I. (3:3:0) (G-SS m) Addy
Colonial period, geography, pre-Columbian civilization, conquest, and institutional development from 1492 to 1810.

352. History of Latin America II. (3:3:0) (G-SS m) Chandler
National period (1810 to present): Independence, institutional development, culture, and inter-American relations.

370. Colonial America. (3:3:0) (G-SS m) Backman, Fox
The founding, growth, and development of the American colonies to 1763.

☐**Economics 371. European Economic History.** (3:3:0)

372. Founding of the American Republic. (3:3:0) (G-SS m) Backman, Fox
Emphasis on causes and consequences of the American Revolution, the Confederation era, and the framing of the Constitution.

☐**Economics 374. Economic History of the United States.** (3:3:0)

375. The American Republic, 1800-1850. (3:3:0) (G-SS m) Campbell, Hill
Political, social, economic, and diplomatic development and westward expansion during the Jeffersonian and Jacksonian eras.

377. Civil War and Reconstruction. (3:3:0) (G-SS m) Fox
The Civil War as the testing of the American political system and as a problem in historical causation.

378. The Emergence of Modern America, from the 1870s to 1920. (3:3:0) (G-SS m) Alexander, Marlow
Political, economic, social, cultural, and intellectual aspects of the development of the United States into an urban-industrial world power (excludes Reconstruction).

379. Contemporary United States History. (3:3:0) (G-SS m) Marlow
An examination of the major domestic and foreign problems of the United States since 1920.

380. Popular Culture in America. (3:3:0) (G-AH) Fox
A historical survey of life and culture in America, with special emphasis upon the American character and its relationship to popular cultural themes.

412. Medieval Institutions. (3:3:0) (G-SS m) Pixton
Treats structure and life of the medieval church and the main institutions of secular life, such as feudalism and monarchy, the university and the town.

415. The Expansion of Europe. (2:2:0) (G-SS m) Jensen
The European discovery, exploration, and colonization of Asia and America from the fifteenth through the eighteenth centuries.

424. European Diplomatic History to 1815. (2:2:0) (G-SS m) Jensen
The development of European diplomatic theory and practice from the Renaissance to the fall of Napoleon.

425. European Diplomatic History since 1815. (2:2:0) (G-SS) Cardon
Emphasizes relationship between European diplomatic history and domestic history of major world powers, including United States and Russia.

429. European Intellectual History since the Enlightenment. (3:3:0) (G-SS) Seibt, Tobler
A survey of the interrelationship of influential ideas and historical events from the end of the eighteenth century to the present.

433. Twentieth Century Germany: Hitler and Beyond. (2:2:0) (G-SS m) Tobler
An analysis of Germany's first attempt at democracy during the 1920s, the rise and fall of Hitler's Third Reich, and the Bonn Republic.

435. Constitutional Foundations of English History. (3:3:0) (G-SS m) Thorp
Medieval constitutional developments and analysis within their political, social, and economic framework.

436. Tudor and Stuart England. (3:3:0) (G-SS m) Thorp
An examination of the major political, social, economic, and cultural developments during the sixteenth and seventeenth centuries in England.

440. Communist China. (3:3:0) (G-SS m) Hyer
Chinese Communist development from the 1920s to the present, with attention to contemporary domestic affairs and foreign relations.

445. History of Asian Religions and Thought. (3:3:0) (G-SS m) Britsch, Palmer
Survey of the development of Asia's religions and modes of thought and their influence upon Asian and world history.

☐**Geography 451. Historical Geography of North America.** (3:3:0)

453. Mexico and the Caribbean. (3:3:0) Home Study also. (G-SS m) Addy, Chandler
Social, economic, and political development in Mexico and in the Latin American states of the Caribbean Sea area.

454. Argentina, Brazil, and Chile. (3:3:0) (G-SS m) Addy
Social, economic, and political development of these Latin American states since 1820.

455. Northern South America. (3:3:0) (G-SS m) Chandler
Social, economic, and political developments since 1810 in the five nations of Venezuela, Columbia, Ecuador, Peru and Bolivia.

457. The Indian in Latin American History. (3:3:0) (G-SS m) Chandler
The history of Latin American Indians from preconquest days to the present, emphasizing their achievements, contributions, and problems.

459. Inter-American Relations. (3:3:0) (G-SS m) Chandler
Relations between the U.S. and Latin American republics since 1810, with emphasis on the Pan-American movement and recent period.

460. Spanish Colonial and Mexican Borderlands. (3:3:0) (G-SS m) Warner
Spanish exploration, occupation, and institutions of the American Southwest; Mexican period to 1848.

462. American Westward Movement to 1825. (2:2:0) (G-SS m) Warner
Emphasis on the early colonization and westward movement east of the Mississippi.

463. American Westward Movement after 1825. (2:2:0) (G-SS m) Allen
Emphasis on the fur trade and colonization in the trans-Mississippi West.

465. California. (2:2:0) Home Study also. (G-SS m) Wood
Survey of the Spanish, Mexican, and American periods in California history, with emphasis on developments since the gold rush.

466. Utah. (3:3:0) Home Study also. (G-SS m) Alexander, Campbell, Wood
Emphasis on the Utah territorial period. Not open to freshmen or sophomores.

467. History of the South. (3:3:0) (G-SS m) Wood
The political, economic, and cultural history of the Southern States from colonial times to the present.

469. The Indian in American History. (2:2:0) (G-SS m) Warner
Survey of major developments in the history of leading Indian tribes, including relations with the United States government.

471. U.S. Intellectual and Social History to 1865. (3:3:0) (G-SS m) Hill
Life and thought in the United States to the Civil War.

472. U.S. Intellectual and Social History since 1865. (3:3:0) (G-SS m) Hill, Marlow
Life and thought in the United States from the Civil War to the present.

473. History of Religion in the United States. (3:3:0) (G-SS m) Backman
The major religious developments in America from colonial times to the present.

474. U.S. Diplomatic History. (3:3:0) Home Study also. (G-SS m) Flammer
Survey of American diplomacy with emphasis on trends and critical decisions of the twentieth century.

475. Military History. (3:3:0) (G-SS m) Flammer
Broad trends in technology, doctrine, leadership, operations, and military-societal relationships from early times to the present with major emphasis on the American experience.

476. American Constitutional History to 1865. (3:3:0) (G-SS m) Stewart
Development of American constitutionalism: Colonial; Confederation; Convention; judicial review; nationalism vs. sectionalism; Civil War.

477. American Constitutional History since 1865. (3:3:0) (G-SS m) Stewart
American constitutional development: Reconstruction; due process; liberal nationalism; New Deal; war and the Constitution; civil liberties.

488. Historiography. (3:3:0) Purdy, Seibt
Fundamental problems and types of historical analysis and interpretation, philosophies of history, and work of outstanding historians.

490. Historical Research and Writing. (3:3:0)
Sources and methods of historical research and writing, and critical analysis of a research project. Required of all senior history majors.

497. Honors Readings. (1-2:0:Arr.)

498. Directed Readings. (1-2:0:Arr.)

500R. Special Studies in History. (1-3:1-3:0) (G-SS m)
Study of special topics, directed by visiting or resident faculty. Check with department secretary for current topic and instructor.

☐**Economics 574. European Economic History.** (3:3:0)

☐**Economics 591. Seminar in Economic History.** (2:2:0)

609. Greek and Roman Thought. (3:3:0) Prerequisite: Hist. 304 or 307. Pixton

613. Medieval Problems and Thought. (3:3:0) Prerequisite: Hist. 310 or 311. Pixton

618. Renaissance Problems and Thought. (3:3:0) Prerequisite: Hist. 312 or consent of instructor. Jensen

619. Reformation Problems and Thought. (3:3:0) (m) Prerequisite: Hist. 313. Jensen

621. Problems in Modern Europe. (3:3:0) Prerequisite: Some college-level study of modern Europe. Cardon

625. Problems in European Diplomacy since 1815. (3:3:0) Prerequisite: Hist. 425 or consent of instructor. Cardon

628. European Thought and Culture of the Enlightenment. (3:3:0) Prerequisite: Hist. 320. Jensen, Seibt

629. European Thought and Culture since 1800. (3:3:0) Prerequisite: Hist. 429. Tobler

631. Problems in Russian History. (3:3:0) Prerequisites: Hist. 330 and 331 or consent of instructor. Holmes

635. Problems in Tudor and Stuart History. (3:3:0) Prerequisite: Hist. 436. Thorp

640R. Problems of Asian History. (3:3:0) Prerequisite: some previous study of Asia. Hyer

648R. Asian Thought and Culture. (3:3:0) Prerequisites: Hist. 340 and 341. Hyer

650. Latin America. (2:2:0) Prerequisites: Hist. 351 and 352. Addy, Chandler

659R. (Hist.-Relig.) Seminar in History of Asian Religion. (1-6:1-2:0 ea.)

660. Problems in Western History. (3:3:0) Prerequisites: Hist. 462 and 463. Alexander, Allen, Arrington, Warner

665. Problems in Mormon History. (3:3:0) Prerequisites: Rel. 341 and 342, or consent of instructor. Arrington, Allen

666. Problems in Utah History. (2:2:0) Prerequisite: Hist. 466. Campbell, Wood

670. Problems in Colonial America. (3:3:0) Prerequisite: Hist. 370. Fox

672. Problems in the Founding of the American Republic. (3:3:0) Prerequisite: Hist. 372. Fox

675. Problems in the Early American Republic (1800-1848). (3:3:0) Prerequisite: Hist. 375. Hill

677. Problems in Civil War and Reconstruction. (3:3:0) Prerequisite. Hist. 377. Fox

678. Problems in the Emergence of Modern America from the 1870s to 1920. (3:3:0) Prerequisite: Hist. 378 or permission of instructor. Alexander

679. Problems in Contemporary American History. (3:3:0) Prerequisite: Hist: 379. Marlow

681. Sources and Problems in American Intellectual History. (3:3:0) Prerequisites: Hist. 471, 472. Hill, Marlow

682. Problems in American Church History. (3:3:0) Prerequisite: graduate standing. Hill

690R. Graduate Seminar in History. (1-3:1-3:0 ea.)

698. Special Readings in History. (1-2:0:Arr.)

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

798. Special Readings in History. (1-2:0:Arr.)

799. Dissertation for Doctor's Degree. (Arr.)

Home Economics Education

Professor: Brasher (Chairman, 2234-B SFLC).
Assistant Professor: Ellsworth, Poulson.
Instructors: Hales, Slaugh.

The Department of Home Economics Education offers a composite major leading to the Bachelor of Science degree and vocational certification through the State Department of Public Instruction. A Master of Science degree is also available.

The major purpose of the department is to prepare students for professional roles in public schools, in cooperative extension services and other government agencies, in business and industry, and for enrichment of family life.

For admission to the education program, students are required to (1) have at least a 2.25 grade-point average, and (2) pass a grammar and spelling test administered by the Teacher Certification Office unless a score of 20 or higher has been achieved in the English portion of the ACT. Clearance must be received prior to registering for Ed. 301.

Due to the nature of the required course work and the time involved, it is imperative that students seek advisement from the Home Economics Education Department at the earliest possible date.

A number of courses required in the major are offered during Spring and Summer terms. It is possible, therefore, for a student who elects to attend summer semesters to complete requirements for graduation in three calendar years.

Home Economics Education—Composite Major

Required Courses

Home Econ. 101 (1); **375, 377 (5); and †489 (2).

CDFR
  210 (3) Child Development
  322 (3) Experience with Children*
  360 (3) Achieving Success in Marriage
  3 hours from 361, 445, 461

Clothing and Textiles
  165 (4) Dress and Pattern Construction
  260 (3) Textiles
  2-3 hours from 110, 235, and 300 during the sophomore year
  2-3 hours from 110, 235, 300, and 355 during the junior year

FEHM
  335, 336 (3) Household Equipment
  350 (2) Principles of Home Management
*†370 (2) Residence Management
  2-3 hours from 295, 415, and 460

FSN
  235 (4) Basic Human Nutrition
  236 (1) Laboratory Experience in Nutrition
  264, 265 (5) Introduction to Food Science
  2 hours from 340, 373

Interior Environment
  240 (3) Introduction to Interior Environment

Education
  *301 (2) Concepts of Teaching
  †410 (2) School Law
  402 (2) Educational Psychology
  †415 (2) Educational Values
  *479 (8) Student Teaching

Nursing
  †425 (2) Home Nursing Instructorship

Health
  †362 (2) School Health for Secondary Teachers

†Block Plan
*Apply one semester in advance
**Semester before student teaching

General Education Requirements

Biological science (6): Micro. 121, Zool. 105
Physical science (6): Chem. 102, 103 (also required: Chem 281)
Math.-Stat.-Logic. (6) or language (201-level class)
English (6): 111, 215
Humanities (6) Int. Env. 240
Social science (5): CDFR 210, 360
Physical education (2)
American history and government (3)
Health 130 (2): exempt
Religion (14): to include 121, 122

Total Hours: 128

Upper division: 40

Residence: 30

Courses

101. Concepts of Home Economics Education. (1:1:0)
Basic concepts and philosophy underlying home economics education.

375. Curriculum Development in Home Economics Education. (2:2:0) Prerequisite: Ed. 301.

377. Secondary Teaching Procedures. (3:3:Arr.) See Ed. 377.

479. Secondary Student Teaching. (8:1:Arr.)
Supervised teaching carried on in an approved home economics education department of a public school. See Ed. 479.

489. Extended Programs in Vocational Home Economics Education. (2:1:2) Prerequisite. Home Ec. Ed. 377.
Examination of home economics education programs for adults and out-of-school youth.

521R. Workshop in Home Economics Education. (1-2:Arr.: Arr. ea.) Prerequisite: consent of instructor.

530. Home Economics Education for Adults. (2:2:0) Prerequisites: Home Ec. Ed. 489, consent of instructor.
The principles, practices, programs, materials, and resources for teaching home economics education to adults.

532. Program Evaluation in Home Economics Education. (2:2:0) Prerequisite: Ed. 479 or consent of instructor.
Analysis of evaluation techniques and construction of evaluation devices unique to home economics.

630. Methods and Curriculum in Home Economics Education. (3:3:0)

650. Organization and Administration of Home Economics Education Programs. (3:3:Arr.)

689. Theoretical Foundation of Home Economics Education. (3:3:Arr.)

693R. Independent Readings and Conference. (1-3:Arr.: Arr. ea.)

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

Honors

Director: Thomas F. Rogers.
Associate Directors: Philip M. Flammer and Reba L. Keele.

The Honors Program provides special academic opportunities in general education for undergraduates of exceptional promise. Open to qualified students in every college of the University, it seeks to enrich rather than shorten, their academic experience. Students participate in Honors while completing the degree requirements of their respective departments.

The student body of the BYU Honors Program is among the finest of its kind in the nation.

Courses

The Honors student has access to a special Honors general education curriculum consisting of Honors courses, Honors sections of departmental general education courses, and Honors sections of departmental sequences in certain majors. These courses, typically small in size and demanding in content, are taught by outstanding faculty members from the established University departments.

Individual Curriculum Planning

The Honors student tailors his general education courses to his own objectives and interests, subject to administrative approval. Extensive individual advisement from both program and University sources is available to the student as he plans his course work and his career. Periodically, the student gives his faculty adviser or a directorate member an accounting of his work, and his progress is reviewed in detail at least annually by an officer of the program. In his senior year, the student submits to a comprehensive review of his work, on the basis of which he may be awarded an Honors designation at graduation. Students seeking the designation of Highest Honors are, in addition, interviewed in an oral examination by a faculty panel.

Independent Learning Experiences

Particularly as upperclassmen, Honors students are encouraged to undertake an independent learning project under the direction of a faculty adviser. Such a project is related to the student's individual career; it may be a scholarly essay, a creative work, a research or teaching assistantship, internship, or a traineeship. Some independent learning projects are carried out in off-compus locations; among these are projects involving educational, social, technological, or medical work in underdeveloped areas of both the United States and other countries. Academic credit is given for approved projects that entail substantial scholarship: of these, the most outstanding earn for their authors the designation "University Scholar."

Extracurricular Activities

The Honors Program sponsors extracurricular activities designed to provide intellectual stimulation and to encourage student interaction. Lectures, colloquia, films, and professional entertainment are regularly offered under the direction of student administrative committees.

Admission

A student may apply for Honors Program membership at the time application is made for admission to the University or at any time before the final year of his college career (the earlier the better). Admission criteria include indications of intellectual power, motivation, and self-discipline as revealed in examinations, academic records, recommendations, essays, and/or interviews. Every effort is made to keep the doors leading into and out of the program open, so that places are always available to students who awaken intellectually after coming to college. Application forms and additional information about Honors at BYU may be obtained by contacting the Honors Program, 436 JRCL.

Courses

100. Special Studies in Honors. (2:10:0)
For students in the Late Summer Honors Program. Individual and small group participation in directed studies with selected faculty members.

110. Reasoning and Composition. (5:5:0)
Intensive development of skills in reasoning, composi-

tion, and critical reading. Fulfills freshman English requirement for Honors Program students.

115. Background Reading. (8:3:2)
Essential background in contemporary issues through discussions, guest lecturers, and written essays based on texts treating the human legacy, society, science, ethical challenges, aesthetics, etc. Fulfills freshman English requirement for Honors Program students.

201R. Language. (3-5:3-5:Arr. ea.) Prerequisite: designated by section.
Intensive study of selected topics in semantics, grammar, linguistics, rhetoric, or history of language.

202R. Literature. (3-5:3-5:0 ea.)
Intensive study of selected topics in literature.

203R. The Arts. (3-5:3-5:0 ea.)
Intensive study of selected topics in the fine arts.

204R. Philosophy. (3-5:3-5:0 ea.)
Intensive study of selected topics in philosophy and such related areas as religious and moral thought.

206R. History. ((3-5:3-5:0 ea.) (G-R 2 hrs.)
Intensive study of selected topics in history and such related areas as archaeology.

207R. Behavior and Society. (3-5:3-5:0 ea.)
Intensive study of selected topics in such areas as psychology, psychiatry, sociology, organizational behavior, and anthropology.

208R. State and Economy. (3-5:3-5:0 ea.)
Intensive study of selected topics in such areas as political science, internal relations, jurisprudence, economics, and political and economic geography.

211R. Mathematics and Its Applications. (3-5:3-5:0 ea.)
Intensive study of selected topics in mathematics and/or in the uses of mathematics in statistics, computer programming, and the various sciences.

212R. The Physical World. (3-5:3-5:0 ea.)
Intensive study of selected topics in physics, astronomy, chemistry, geology, technology, and/or physical geography.

213R. Biology. (3-5:3-5:0 ea.) Prerequisites: Honors 211R and 212R or consent of instructor.
Intensive study of selected topics in the life sciences and such related areas as medicine and agriculture.

215. Background Reading. (8:3:2)
Essential background in the classics through discussions, guest lecturers, and written essays based on intensive and cursive reading of key literary-philosophical texts. Fulfills freshman English requirement for Honors Program students.

401R. Special Studies in Humanities. (3-5:var:0 ea.)
Selected issues in the humanities, generally of a synthesizing or interdisciplinary nature. For mature or advanced students.

402R. Special Studies in the Natural Sciences. (3-5:var:0 ea.)
Selected issues in the natural sciences, generally of a synthesizing or interdisciplinary nature. For mature or advanced students.

403R. Special Studies in the Social Sciences. (3-5:var:0 ea.)
Special studies in the social sciences, generally of a synthesizing or interdisciplinary nature. For mature or advanced students.

497R. Independent Study. (Arr.) Prerequisites: acceptance of proposal by Honors directorate and, where applicable, by department chairman.
Faculty-advised University Scholar or other paraprofessional project.

Humanities and Comparative Literature

Professors: R. Britsch, Spears (emeritus).
Associate Professor: T. Britsch (Chairman, A-113 JKBA).
Assistant Professors: Bassett, Davis, Green, Marshall, Sondrup, G. Tate.

In this department, two areas of study are brought together: humanities and comparative literature—areas that are related in two principal ways. First, both are concerned with the interrelationships of two or more disciplines in literature and the other arts. Second, although both provide basic courses in their own areas, they also make use of the offerings of other departments in the construction of programs for their major students. The Department of Humanities and Comparative Literature offers the Associate of Arts, Bachelor of Arts, and Master of Arts degrees in humanities and the Bachelor of Arts and Master of Arts degrees in comparative literature.

Humanities

For capable students in the humanities whose educational objectives are not met by a conventional major in one department and a minor in another, the University offers an interdepartmental major and minor including 53 or 54 semester hours in art, history, literature (including foreign literature), music, and philosophy. Students are advised to support these subjects with additional courses in philosophy, the social sciences, and other related areas. Students will also complete a foreign language program sufficient for the Bachelor of Arts degree. Of the 53 or 54 semester hours required in humanities, art, history, literature, music, and philosophy, at least 25 must be upper-division work.

Although the educational and vocational goals of most students are perhaps best served by a conventional major and minor, selected students will profit from broader training which includes intensive work in several of the humanities subjects. Such a program has broad cultural value. Through it, students may acquaint themselves with the relationships among the various humanities subjects and obtain a valuable liberal education consisting of substantial, well-balanced work in the broad field of the humanities. Students in humanities may also certify to teach by emphasizing either English or one of the foreign languages in a composite major program. (See the Department of Education section.)

It is recommended that the student arrange his course sequence so that historical relationships can be observed as far as possible; for example, it is desirable to take courses emphasizing early periods in art or history or music simultaneously.

Students may enter the humanities program only with permission of the chairman or the coordinator of the Humanities Advisement Center.

Humanities majors complete the English composition requirement by taking Engl. 111 during the freshman year and Engl. 251 during the sophomore year.

Requirements for the Associate of Arts degree in Humanities

General Education

English composition	6
American history	3
Health	2
Physical education	1
Biological science	3
Physical science	3
Social science	3
Religion	8
	29

Language
The student must fulfill the B.A. language requirement, i.e., 201 or its equivalent (see Gen-

eral Education Program section of this catalog).

If previous training or experience allows a student to begin at a higher level than 101 (e.g., 201) the credits saved in language (e.g., 8 hours from 101, 102) may be taken in electives	12
Humanities, Comparative Literature, and Electives	
Hum. 201, 202	6
Music 101 or 103	2 or 3
English literature and comparative literature	6
History or philosophy	3
Art	3
Plus 2 or 3 additional elective hours	2 or 3
	23
Total	64 credit hours

Specific courses must be selected with approval of the college advisement center or the Department of Humanities and Comparative Literature from the lists of acceptable classes for the B.A. degree in humanities.

Required Courses for the Bachelor of Arts in Humanities

(All courses must be selected from approved lists below.)

Humanities	12 hours
201, 202, 490, and either 240 or 261	
Primary Emphasis Area	12 hours
Selected from either Art and Design, English and Comparative Literature, History, a single foreign language literature, Music, or Philosophy.	
Supporting Areas	29 or 30 hours
(Courses taken for the Primary Emphasis Area will satisfy the supporting area requirement in that field.)	
Art and Design	6
English and Comparative Literature	6
Foreign language literature (one language)	6
History	6
Music	5
Philosophy	6
Total	53 or 54 hours

Lists of Approved Courses

Art and Design

101	(2)	Introduction to Art
102	(2)	Design for Nonmajors
103	(2)	Drawing for Nonmajors
107	(2)	Painting for Nonmajors
110	(2)	Design in Everyday Life
207R	(2 ea.)	Advanced Painting for Nonmajors
302	(2)	Oriental Art
311, 312	(3 ea.)	Survey of Art and Architecture
400R	(2 ea.)	Individual Study in Art History
401	(2)	Ancient and Primitive Art
402	(2)	Classical Art
404	(2)	Medieval Art
406	(2)	Renaissance Art
408	(2)	Baroque Art
410	(2)	American Art
411	(2)	Nineteenth-Century European Art
412	(2)	Contemporary Art
415R	(2)	Special Projects

English

251	(3)	Fundamentals of Literature

(Note: Engl. 251 is a prerequisite for Engl. 301, 302, and 303, which are required for certification. If Engl. 251 is taken as part of the 6-hour English composition requirement, it cannot contribute to the literature requirement for the humanities major).

260	(3)	Vital Themes in American Literature
270	(3)	Masterpieces of English Literature
301	(4)	Early Masters of English Literature
302	(4)	Later Masters of English Literature
303	(4)	Masters of American Literature
332	(3)	The English Novel from Defoe through Dickens
333	(3)	The English Novel from Eliot to 1950
335	(3)	The Nineteenth-Century American Novel
336	(2)	The Twentieth-Century American Novel
341	(3)	English Drama
343	(3)	Modern English and American Drama
361	(3)	Early American Literature
362	(3)	Later Nineteenth-Century American Literature
363	(3)	American Literature from 1914 to Mid-Century
371	(3)	English Literature to 1500: The Medieval Period
372	(3)	English Literature from 1500 to 1660: The Renaissance Period
373	(3)	English Literature from 1660 to 1780: The Classical Period
374	(3)	English Literature from 1780 to 1832: The Romantic Period
375	(3)	English Literature from 1832 to 1890: The Victorian Period
376	(3)	English Literature from 1890 to 1950
381	(3)	Chaucer
382	(3)	Shakespeare or Extended Readings in Shakespeare
391	(3)	Studies in Folklore
392	(3)	American Folklore
500R	(1-3 ea.)	Eminent American Writers
510R	(1-3 ea.)	Eminent English Writers

Comparative Literature (Humanities)

310	(3)	Introduction to Comparative Literature
338	(3)	European Novel
355, 356	(3 ea.)	World Classics I, II
371	(3)	Literature of the Middle Ages
372	(3)	Literature of the Renaissance
373	(3)	Literature of the Enlightenment
374	(3)	The Romantic Movement
375	(3)	Realism and the Modern Age

History

110, 111	(3 ea.)	World Civilization I, II
300	(3)	Ancient Near East
302	(3)	Medieval and Modern Near East
304	(3)	Greek History and Civilization
307	(3)	Roman History and Civilization
310	(3)	The Early Middle Ages
311	(3)	The Late Middle Ages
312	(3)	The Renaissance: Age of Transition
313	(3)	The Reformation: Age of Turmoil
320	(3)	The Age of Enlightenment
322	(3)	Nineteenth-Century Europe
323	(3)	Europe in the Twentieth Century
340	(3)	Premodern Asia
341	(3)	Modern Asia
471	(3)	U.S. Intellectual and Social History to 1865
472	(3)	U.S. Intellectual and Social History since 1865

Languages

Chinese

441, 442	(4 ea.)	Classical and Documentary Chinese
443	(4)	Modern Chinese Literature

French

440	(4)	Historical Survey of French Literature
441, 442	(3 ea.)	Survey of French Literature and Culture
445	(3)	Introduction to French Civilization
446	(3)	French Poetry
447	(3)	French Dramatic Literature
448	(3)	French Literary Prose

German

401	(3)	Cultural History of German-Speaking People
440	(4)	Survey of German Literature and Culture
441	(3)	German Literature from the Beginning to 1700
442	(3)	German Literature in the Eighteenth Century
443	(3)	German Literature in the Nineteenth Century
444	(3)	German Literature in the Twentieth Century

Greek

429	(3)	Stylistic and Literary Analysis
431, 432	(3 ea.)	Masterpieces of Greek Literature

441, 442 (3 ea.) Survey of Greek Literature and Culture
445 (3) Classical Greek Culture

Italian
440 (4) Survey of Italian Literature
445 (3) Introduction to Italian Civilization
460 (3) The Age of Dante
465 (3) Italian Literature of the Renaissance
470 (3) Italian Literature of the Romantic Period
485 (3) Italian Literature of the Twentieth Century
490R (1-3) Individual Study in Italian Literature

Japanese
443 (3) Modern Japanese Literature
444 (3) Modern Japanese Literature
445 (3) Japanese Civilization

Latin
429 (3) Latin Stylistic and Literary Analysis
431, 432 (3 ea.) Masterpieces of Latin Literature

Portuguese
441 (4) Survey of Portuguese Literature
445 (2) Iberian Culture
451 (4) Survey of Brazilian Literature
455 (2) Ibero-American Culture

Russian
440 (2) Russian Literature from the Beginning through the Eighteenth Century
441 (3) Survey of Russian Literature in the Nineteenth Century
442 (3) Survey of Russian Literature in the Twentieth Century

Spanish
439 (3) Elements of Literary Analysis
441 (4) Survey of Spanish Literature
445 (3) Iberian Civilization
451 (4) Survey of Hispanic-American Literature
455 (2) Ibero-American Culture

Music
101 (3) Introduction to Music (not for music emphasis)
103 (2) Survey of Music Literature
195 (2) Expanding Musicianship Core 1 (Music emphasis only)
196 (2) Expanding Musicianship Core 2 (Music emphasis only)
484, 485 (3 ea.) History of Music

Note: Humanities majors also are encouraged to take one or two of the many participation courses offered by the Music Department.

Philosophy
110 (3) Foundations of Philosophical Thought
221 (3) Ancient and Medieval Origins of Western Philosophy
222 (3) The Emergence of Modern Philosophy
352 (3) Aesthetics
371R (2-5) Topics in Philosophy
372R (2-5) Figures in Philosophy
373R (2-5) Historical Movements in Philosophy

Graduate Study in Humanities

For detailed description of the requirements for the Master of Arts degree in humanities, see the **Graduate School Catalog.**

Comparative Literature

The program in comparative literature is based on the belief that literature, like the other arts, transcends national and linguistic boundaries and that many students will wish to extend their knowledge and enjoyment of poetry, fiction, and similar writings beyond the limits of English and American literature. The student of literature with an aptitude for languages can probably master his subject most effectively if he gains a firm knowledge of at least one national literature and at the same time makes a careful study of literary masterpieces of other languages in the original tongues and in translation. In the comparative literature area the student has opportunity (a) to develop his ability to read and evaluate literature, (b) to gain a broader awareness of literary history than he could through the study of a single literature, (c) to become aware of the interrelatedness of the great traditions of literature, and (d) to develop techniques for the study of problems that involve more than one literature.

In addition to completing a number of courses offered by the area of comparative literature, the major will round out his program with courses in literature offered by the Departments of English and the various languages. These courses will be selected under the supervision of his adviser.

Requirements for the Bachelor of Arts Degree in Comparative Literature

Students majoring in comparative literature must complete at least the 36 hours outlined in the following program:

Comparative Literature—12 hours: four courses, including Hum. 310, at least one of the Hum. 371-375 series courses, and Hum. 491R.
Classical Civilization—6 hours: two courses from Classical Civ. 441, 442, 443, 461. (See Languages: Classical, Biblical, and Middle Eastern.)
Literature in a foreign language (original)—9 hours from 400-level classes (for example, French 440, 441, 442, etc.).
Literature in a second language (English or foreign)—9 hours: English courses are to be selected, with the consent of the adviser, from the upper-division courses in literature and criticism; foreign literature courses are to be on the 400 level.

In addition, the student is urged to develop competence in a second foreign language, preferably a classical one if his first foreign language is modern. He is also encouraged to take at least one course in the Hum. 201, 202 series.

Requirements for a Minor in Comparative Literature

An undergraduate minor in comparative literature requires 15 or more hours in the area, including (1) three or more hours of literature in foreign language, on at least the 400 level (foreign language majors will fill this requirement by taking three additional hours of comparative literature); (2) Hum. 310, Introduction to Comparative Literature; (3) one course from the Humanities 371-375 series; and (4) one course from the Classical Civilization series, 341, 441, 442, 443, 461.

Graduate Study in Comparative Literature

For detailed description of the requirements for the Master of Arts degree in comparative literature, see the **Graduate School Catalog.**

Courses

101. An Introduction to the Humanities. (3:3:0) Home Study also. (G-HA)
A course in applied aesthetics, concerned with the forms and relationships of the major arts—literature, painting, sculpture, architecture, and music.

201. The Arts in Western Culture: Age of Greece to Early Renaissance. (3:3:0) (G-HA)
The development of the major arts—literature, painting, sculpture, architecture, and music—in the Greek and Roman periods, the Middle Ages, and the early Renaissance.

202. The Arts in Western Culture: Late Renaissance to the Modern Age. (3:3:0) (G-HA)
The development of the major arts—literature, painting, sculpture, architecture, and music—from the late Renaissance to the present.

240. Introduction to the Humanities of Asia. (3:3:0) (G-HA) L. Shumway, Williams
The major arts of Asian cultures, placed within their historical, religious, and philosophical settings.

261. The Arts in American Culture. (3:3:0) (G-HA) Bassett, R. Britsch, D. Marshall

The development of the major arts—literature, painting, sculpture, architecture, and music—in America from colonial times to the present.

310. Introduction to Comparative Literature. (3:3:0) (G-HA m) Prerequisites: Engl. 251 or equivalent; reading knowledge of at least one non-English language. T. Britsch, G. Tate

Principles of literary comparison and analysis; study of selected critical and literary texts from classical antiquity to present, read in English and one foreign language.

320R. Topics in Comparative Literature. (1-3:1-3:0) (G-HA m)

338. (Engl.-Hum.) European Novel. (3:3:0) (G-HA m) Blanch, M. Clark

The works of the principal European novelists, including Cervantes, Flaubert, Zola, Turgenev, Dostoevsky, Tolstoy, Mann, Kafka, and others, in English translations.

340R. Russian Literature in Translation. (3:3:0) (G-HA m) Gubler, Rogers

Introduction to philosophical themes, social issues, characterizations, and artistry of nineteenth- and twentieth-century Russian authors.

341R. (German-Hum.) Masterpieces of German Literature. (3:3:0 ea.) (G-HA m)

Reading and discussion of German literature in English translation. Topic varies each semester.

342R. (Chinese-Hum.) Chinese Literature in Translation. (3:3:0 ea.) (G-HA m) G. Williams

A historical survey of the major literary works.

343R. (Hum.-Japanese) Japanese Literature in Translation. (3:3:0) (G-HA m) Beaman

A historical survey of the major literary works from the eighth to the nineteenth centuries.

344R. (Scand.-Hum.) Masterpieces of Scandinavian Literature. (3:3:0) (G-HA) Harris, Sondrup, G. Tate

Topic varies each semester. Works may be read in English translation. Course not applicable to minor (but see Scandinavian Studies Minor).

355. (Engl.-Hum.) World Classics I. (3:3:0) (G-HA m) R. Britsch, Davis, Phillips, C. Tate

Greek and Roman epic and drama and European classics of the Middle Ages and Renaissance in translation, with emphasis on Homer, Aeschylus, Sophocles, Euripides, Virgil, and Dante.

356. (Engl.-Hum.) World Classics II. (3:3:0) (G-HA m) Sondrup, C. Tate, Thomson

European masterpieces of neoclassicism, romanticism, realism, naturalism, and symbolism in translation.

371. Literature of the Middle Ages. (3:3:0) (G-HA m)

A comparative study of English and continental European literature of the Middle Ages.

372. Literature of the Renaissance. (3:3:0) (G-HA m)

A comparative study of English and continental European literature of the Renaissance.

373. Literature of the Enlightenment. (3:3:0) (G-HA m)

A comparative study of English, American, and continental European literature of the Age of Enlightenment.

374. Literature of the Romantic Movement. (3:3:0) (G-HA m)

A comparative study of Romanticism in the literature of England, America, and continental Europe.

375. Literature of Realism and the Modern Age. (3:3:0) (G-HA m)

A comparative study of English, American, and continental European literature of the later nineteenth and twentieth centuries.

☐**English 391. Studies in Folklore.** (3:3:0)

401. (Scand.-Hum.) Cultural History of Scandinavia. (3:3:0) (G-HA) Sondrup

A consideration of Scandinavian culture from the Vikings to the present. No prerequisite. Works may be read in English translation.

490. Seminar in Humanities. (3:3:0) (m) Prerequisite: senior status with major in humanities or a related discipline.

Extensive reading, analysis, and presentation of papers concerning problems in the humanities—period classification, relationships between the arts, and current critical practice.

491R. Seminar in Comparative Literature. (3:3:0 ea.) (m)

Reading, analysis, and presentation of papers concerning selected topics in comparative literature. Basic topics will vary from semester to semester.

498R. Directed Readings. (1-3:Arr.:0 ea.)

For humanities or comparative literature majors only, with consent of department chairman.

601. The Arts in Historical Context: Greece to the High Renaissance. (3:3:0) (m) T. Britsch

602. The Arts in Historical Context: Late Renaissance through the Modern Age. (3:3:0) (m) T. Britsch, Green

610. Methods of Study in Comparative Literature. (3:3:0) Prerequisite: consent of instructor.

690R. Seminar in Comparative Literature. (3:3:0 ea.) Prerequisite: Hum. 610 or consent of instructor.

695R. Individual Readings. (1-2:Arr.:0 ea.)

699. Thesis for Master's Degree. (6-9:Arr.:0)

Indian Education

Associate Professors: DeHoyos, Sawyer.
Assistant Professors: Banks, Bennion, Fox, Garbe, Gowans, Harmon, Osborne, Pope, Rigby, Roeller, Westover.
Instructors: Hurd, Lofgreen, Maestas (Chairman, 160-A BRMB), Rainer, Sumpter.

This department exists to prepare Indian students from North, Central, and South America and students from the Pacific Islands to succeed in college work and to make meaningful contributions to society.

Except in unusual circumstances, Indian students first register in the Department of Indian Education upon admission to the University; later, they transfer to any of the degree programs available in the University's various colleges.

Services of the Department

The department is divided into three main areas which serve the student: Indian Student Activities, Indian Personal Services, and Indian Academic Services.

The first two areas are so designed that students themselves take part in some of the decision-making and administrative processes. In addition, the Student Activities area sponsors important creative and service projects in which Indian students may engage. In these ways, students enjoy extracurricular learning opportunities which help to prepare them for future leadership.

Financial assistance for Indian students is coordinated through the Department of Indian Education.

The Indian student organization, the Tribe of Many Feathers, coordinates many of the Indian student activities both on and off campus.

The Academic Program

In the Academic Services area, faculty members teach sections of courses in which Indian students, as well as others, enroll. None of these courses is located in the department: Indian students take regular University courses. However, the faculty members in the department who teach sections which include Indian students are especially well equipped to help these students bridge the differences between their various cultural backgrounds and the academic style of the American university.

Detailed information concerning the courses which are recommended for incoming freshmen and transfer Indian students is made available to these students upon admission.

Tutoring services beyond regular classroom instruction are provided both for individuals and for small groups.

Listed below are courses having sections taught by the Indian Education faculty in which it is especially advantageous for Indian students to enroll.

Courses

☐**Chemistry 100. Elementary College Chemistry.** (3:3:0)

☐**Physics and Astronomy 100. Fundamentals of Physics.** (3:3:0)

☐**General Studies 100R. Fundamentals of Mathematics.** (2:4:Arr. ea.)

Designed to develop an understanding of the basic structure of mathematics.

☐**Business Education 101. Beginning Typewriting.** (2:3:2)

☐**Geology 101. Introduction to Geology.** (2:2:0)

☐**Mathematics 101. Intermediate Algebra.** (3:5:0)

☐**Communications 100. Speech Communication.** (3:3:1)

☐**Zoology 101. Introduction to Biological Science.** (3:3:3) (G-BS)

A survey course in the field of biological science.

☐**Geology 102. Introduction to Geology Laboratory.** (1:0:2)

☐**Communications 102. Introduction to Public Speaking.** (2:2:1)

☐**Mathematics 105. College Algebra.** (3:4:0)

☐**Mathematics 106. Trigonometry.** (3:3:0)

☐**General Studies 106. English: Personal Communication.** (3:5:0) Prerequisite. Engl. 111.

For two-year students. Designed to develop ability to communicate effectively and to develop competence in specialized report writing for formal classes. (Does not fulfill freshman English requirements for a baccalaureate degree.)

☐**University Studies 107. Contemporary Issues in Indian Affairs.** (3:3:1) (G-SS) Gowans

Contemporary Indian America. Evaluation of Indian movements and current Indian legislation on the national, state, and tribal levels.

☐**Business Education 111. Elementary Shorthand.** (4:5:1)

☐**English 111. Composition and Reading.** (3:3:0)

☐**Sociology 111. Introductory Sociology.** (3:3:0)

☐**Business Education 112. Intermediate Shorthand.** (3:5:1)

☐**Sociology 112. Modern Social Problems.** (3:3:0)

☐**Religion 121, 122. Introduction to the Book of Mormon.** (2:2:1 ea.)

☐**Health 130. Personal Health.** (2:2:0)

☐**History 170. The American Heritage.** (3:3:0)

☐**Business Education 203. Speedbuilding in Production Typewriting.** (2:3:2)

☐**Business Education 206. Calculating Machines.** (2:3:2)

☐**Religion 211, 212. The New Testament.** (2:2:0 ea.)

☐**Sociology 223. Racial and Minority Group Relations.** (3:3:0)

☐**Religion 231, 232. The Gospel in Principle and Practice.** (2:2:0 ea.)

Industrial Education

Professors: Hinckley, McArthur, McKell (Chairman, 230 SNLB).

Associate Professors: Gamett, Grover, Jenkins, McKinnon, Nish.

Assistant Professors: Hill, Shepherd.

The Industrial Education Department provides four major areas of instruction:

1. **Industrial Arts Teacher Education,** offering instruction leading to the baccalaureate degree to prepare industrial arts teachers for junior and senior high schools. Courses are available to elementary teachers in industrial arts and career education.
2. **Technical Teacher Education,** offering instruction leading to the baccalaureate degree to prepare teachers primarily for vocational and technical schools.
3. **Graduate Program,** leading to the Master of Science or the Master of Industrial Education degree, designed to prepare master teachers, supervisors, and coordinators of industrial and technical education.
   Note: In cooperation with the College of Education, the Doctor of Education degree is available, with minor emphasis in industrial education.
4. **The General Service Courses,** open to all students. These courses offer basic experiences in fundamental operations and processes and are designed to give exploration, guidance, and consumer knowledge of modern industry and crafts.

Requirements for the Secondary Teaching Credential

Students planning to become teachers are encouraged to seek early advisement from the department concerning the teacher education program. Students should take courses in their major area concurrently with the General Education requirements to provide a smooth functioning of the program. Students beginning their professional preparation in the senior year may find it necessary to devote additional time for completion of the program, since they usually will not have taken the technical laboratory courses in the depth areas of the curriculum.

General Education Requirements

ArtDs. 109, Math. 105 or higher, and physics or chemistry. (These courses should be taken early in your program). For additional requirements, see the General Education section of this catalog.

Educational Requirements for Certification

See the requirements listed by the College of Education. Refer to the Education section for industrial education certification standards.

Note: Ind. Ed. 377, Secondary Teaching and Curriculum Methods, and Ind. Ed. 479, Secondary Student Teaching in Industrial Education, must be taken in the Industrial Education Department, not in the Department of Education.

Students must not assume that completion of the requirements for graduation will mean that they have completed certification requirements. It is the student's responsibility to keep the TCO informed, through his adviser, of his progress toward certification.

Industrial Arts and Technical Teacher Education

Industrial Arts Teacher Education

This program is designed to prepare teachers for elementary, junior high, high and posthigh school industrial arts positions. Area depth sequences are available to give optimum training for the grade level to be taught.

Core List: All students must take the following courses: Des. Tech. 111; Ind. Ed. 100, 101, 129, 240, 250, and 289.

Technical Depth Areas: An additional 27 semester hours must be selected from the following technical areas. A minimum of 2 classes including the core classes must be taken in each of 4 areas.

Crafts: Ind. Ed. 260*, 319, 360, 365, and 490R.
Design Technology: Des. Tech. 211, 212, 256, 310, 355*, 410, and 436.
Electronics: Elect. Tech. 102*, 103, 231, 232, and 235.
Graphic Arts: Ind. Ed. 351*, 451, 452, 453, and 454.
Metals: Ind. Ed. 130*, 139, 329; Mfg. Tech. 331, 335, and 337.
Plastics: Ind. Ed. 300, 329, 440*; Mfg. Tech. 360, and 431.
Power-Auto: Ind. Ed. 189*, 387, 388, 389, 489, and 490R.
Woods: Ind. Ed. 105, 200, 210, 300.

***Professional Ind. Ed.:** Ind. Ed. 291R, 377, 405, 470, 479, 491R, and 540**.

***Professional Educ.:** Ed. 301, 403R, 410, 415; and Health 362.

Technical Teacher Education

This curriculum is designed to prepare teachers for technical and industrial programs in high and posthigh school institutions. Admittance to the program requires approval of the department, a minimum GPA of 2.25, and the Associate of Science degree in a technical area or completion of the courses for the associate degree.

***Core List:** Ind. Ed. 100, 101, 129, 240, 250, 289, and Des. Tech. 111.

Technical Area: An associate degree or an approved program for an associate degree in a technical area. Additional courses must be selected from the technical depth area. The core class in the technical area may be deleted, allowing a total of 30 semester hours for the technical area and 18 semester hours for the core area.

***Professional Ind. Ed.:** Ind. Ed. 291R, 377, 405, 470, 479, 419R, and **540.

***Professional Educ.:** Ed. 301, 403R, 410, 415; and Health 362.

General Education: ArtDs. 109, Math. 105 or higher, and physics or chemistry. For additional requirements, see the General Education section of this catalog.

*Required.
**May receive graduate credit if approved to be taken last semester.

Graduate Work in Industrial Education

Master of Science: Minimum of 27 semester hours plus thesis (6 hours minimum).

Required Courses. Ind. Ed. 615, 625, 645, 690R (2 hr. min.), 694R (2 hr. min.), 698; Ed. 600; and a minimum of 6 semester hours selected from graduate industrial education and technical education courses.

Master of Industrial Education: Minimum of 33 semester hours, including a field project.

Required courses: Ind. Ed. 615, 625, 645, 690R, 694R (2 hrs.), 698; Ed. 560; and a minimum of 6 semester hours selected from graduate industrial education courses.

Courses

100. Woodwork Fundamentals. (3:2:4)
Care and use of hand and machine woodworking tools applied to fundamental principles of sawing, joining, fitting, and fastening.

101. Basic Electricity. (3:2:4) Home Study also.
Theory of electricity, including direct and alternating current circuits and magnetism, and basic theory of electron tubes and transistors.

105. Wood Finishing. (2:1:3)
Preparation of surfaces for the application of finishes, stains, paints, varnishes, lacquers, polishes, etc. Use of brush and air gun.

129. Metalwork Fundamentals. (3:2:4)
An introduction to the field of metal-working processes. Includes basic metal forming, cutting, and welding.

130. Introduction to Manufacturing Processes. (3:2:4)
An introduction to the processes of shaping, forming, and stamping of metals.

139. Sheet Metal and Ornamental Iron. (2:1:3)
Processes in sheet metal, ornamental iron work, and pattern layout.

160. Recreational Handicrafts. (2:1:3)
Open to all non-industrial arts majors. Woodcrafts, metalcrafts, plastics, leather, and electives.

189. Gas and Diesel Engines. (3:2:4)
Care and maintenance of gas and diesel engines, including overhaul and rebuilding procedures.

200. Woodwork Projects. (3:2:4) Prerequisite: Ind. Ed. 100.
Advanced woodwork and operations in the construction of furniture. Drawings, specifications, and cost estimates of all projects are submitted by the student.

210. Carpentry Framing. (3:2:4) Prerequisite: Ind. Ed. 100.
Practical problems in forming, framing, sheathing, and insulation.

240. Introductory Plastics Processes. (3:2:4)
A practical shop experience in the use of production machinery, tools, and materials: wood, metal and plastics.

250. Graphic Arts. (3:2:4)
Beginning course in the principles and practices of graphic arts. Includes a study of how each reproduction process fits into the field of visual communications.

260. Crafts. (3:2:4)
Fundamental hand and machine operations used in working plastics, wood, and leather.

289. Power Sources of Industry. (3:2:4)
Development, theory, and application of energy conversion machines.

291R. Seminar. (0:2 per month:0 ea.)
A seminar to provide for the development of leadership training skills and professional growth and development. Required of majors during each semester of enrollment.

300. Contemporary Processes and Wood Materials. (3:2:4) Prerequisite: Ind. Ed. 100.
Application of industrial wood processes, including green wood processing, wood laminating, and making silicone rubber molds from wood originals.

315. The World of Construction. (2:1:3)
Theory and working knowledge of an instructional system and philosophical foundation necessary to teach basic concepts, knowledge, and skills of the construction industry.

319. Upholstery. (2:1:3)
Experience with typical upholstery systems.

325. The World of Manufacturing. (2:1:3)
Theory and working knowledge of an instructional system and philosophical foundation necesary to teach

basic concepts, knowledge, and skills of manufacturing industries.

329. Advanced Metal Machining. (3:2:4) Prerequisite: Ind. Ed. 130.
Development of operetional skills and precision with machining equipment. Introduction to NC and EDM equipment.

351. Typographical Layout and Design. (3:2:4) Prerequisite: Ind. Ed. 250.
Principles of design applied to printed products. Arrangement and paste-up of art materials for reproduction. Study of ink, paper, and color theory.

360. Crafts II. (3:2:4)
Processes in metal crafts, textiles, and ceramics.

365. Crafts III. (2:1:3) (m)
Lapidary and stonesetting.

377. Secondary Teaching and Curriculum Methods. (3:3:0) Prerequisite: Ed. 301.
Methods, techniques, and special classroom procedures applied to individual and group instruction in industrial and technical education.

387. Steering and Braking Mechanisms. (3:2:4)
Theory and application of the principles of alignment, brakes, steering, and suspension systems on the modern automobile.

388. Power Transmission. (3:2:4)
Theory and application of the principles of standard transmissions, differentials, and automatic transmissions (light duty).

389. Fuel and Electrical Systems. (3:2:4)
Principles, design, and application of various types of fuel and electrical systems used on highway vehicles. Includes use of tune-up instruments.

405. Shop Maintenance. (2:1:3)
Care and maintenance of tools and machines.

440. Industrial Plastics. (3:2:4) Prerequisite: Ind. Ed. 100 or 130.
Processes and materials used in laminating, molding, extruding, casting, and thermoforming.

451. Photoetching. (3:2:4) Prerequisite: Ind. Ed. 250.
Technical study of the materials and procedures in the production of photoengraving: photofabrication, stereotyping, printed circuits; photo, mechanical etchings on brass, copper, and zinc.

452. Advanced Letterpress. (2:1:3) Prerequisite: Ind. Ed. 250.
Advanced imposition and lockup, platen press operation, cylinder press operation, make-ready, paper cutting, die cutting, scoring, embossing and perforating, and operation of bindery equipment.

453. Photolithography. (3:2:4) Prerequisite: Ind. Ed. 250.
Process camera work, stripping procedures, surface platemaking for offset lithography, and color separation techniques with densitometer.

454. Photo-Screen Process Printing. (3:2:4) Prerequisite: Ind. Ed. 250.
Specialized photographic techniques, methods, and materials used in producing screen-process stencils, including photocomposition of type.

470. Shop Organization and Management. (2:2:0) Prerequisite: completion of or concurrent registration in Ind. Ed. 377.
Organization and management of industrial education shops, including unit, general, and multiple activity types.

479. Secondary Student Teaching in Industrial Education. (2-8:1:40)

489. Power Tune-Up. (2:1:4) Prerequisite: Ind. Ed. 389.
Theory and application of balancing the ignition and fuel systems to decrease emissions and improve performance of automotive engines utilizing a chassis dynamometer.

490R. Advanced Topics in Industrial Education. (1-3:Arr.:Arr.)
Individual study in special areas of interest. The area must be specified. Maximum of 3 semester hours allowed in any one area.

491R. Seminar. (½:2 per month:0 ea.)
A seminar to provide for the development of leadership training skills and professional growth and development. Required of seniors.

505. Industrial Arts for Elementary Teachers. (2:2:0)
Nature and needs of teachers instructing industrial arts in the elementary schools, with emphasis on content and procedures.

535. Industrial Education Safety and Liability. (2:2:0)
Principles of accident causes and prevention in industrial education laboratories. Teacher and student responsibility regarding liability. Present laws affecting school safety.

540. Industrial Occupational Information and Guidance. (2:2:0)
Instruction in current industrial and technological advances related to industrial education.

593R. Workshop in Industrial Education. (1-3:Arr.:Arr. ea.)
Instruction in current industrial and technological advances related to industrial education.

610. History and Trends in Industrial and Technical Education. (2:2:0)

615. Principles and Objectives of Industrial and Technical Education. (2:2:0)

625. Course Construction in Industrial and Technical Education. (3:3:0)

630. Problems of Adult Industrial Education. (2:2:0)

635. Planning and Equipping Industrial and Technical Programs. (2:2:0)

640. Coordination and Supervision of Industrial and Technical Education. (2:2:0)

645. Visual and Graphic Materials in Industrial Education. (2:1:2)

690R. Seminar. (1:1:0 ea.)

694R. Readings and Conference. (1-3:1-3:0 ea.)
Limited to a maximum of six credit hours.

695R. Problems in Industrial and Technical Education. (1-3:1-3:3-9 ea.)
Limited to a maximum of six credit hours.

698. Field Project. (2-4:Arr.:Arr.)

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

Interior Environment

Instructors: Allen, Dansie (Chairman, 233 BRMB), Gustafson, Hollingshead, R. Kinateder, D. H. Kinateder, Nady, Offield, Richards, Riggs, Stimpson, Sumerix, Taylor, Viehweg, West, Wymore.

The Department of Interior Environment, as part of the College of Family Living, is dedicated to helping create homes that are fully responsive to the finest expressions of family life. In order to accomplish this, the department offers courses that are open to all students in the University and provides a curriculum designed to prepare majors for professional competency. The curriculum has been prepared with three objectives in mind:

1. To prepare each student to create, with competence, interior home environments in which family members may live and function at their highest level. To accomplish this objective, the department strives to—

   a. develop sensitivity in planning various aspects of the home, such as function, economy, individuality, and beauty, to fit the life-style needs of the family unit

   b. help the student get the maximum value in the complete design of the home with the minimum expenditure

   c. instill in the student a broad understanding of the total interior environment and its importance in the psychological growth and development of the individual.
2. To prepare the student to enter graduate school.
3. To give the student, through academic and practical training, an adequate background to qualify for employment in the field of interior design. With adequate qualifications and apprenticeship, status as a professional designer may be earned.

Study Abroad

A period of study abroad is offered each summer, during which students may earn 6 credit hours through firsthand study of architecture, furniture, and the decorative arts in cottages, castles, and museums in Italy, France, and England.

ASID

Through meetings, lectures, field trips, and other group involvement, the student chapter of the American Society of Interior Designers in the department affords students valuable experiences and professional practice in interior design.

Major Requirements

Students majoring in interior environment are required to complete a minimum of 33 hours in the department, including Int. Env. 237, 238R, 240, 330, 331, 340, 350, 360, 425, 440, 460, 480, and 499R; ArtDs. 102, 312, 412; Des. Tech. 104; and Clo. and Text. 260.

Courses related to Interior Environment and of value to the major in the department, although not required, include Hum. 101, Phil. 110, Physics 137 and 177, Bio. Agr. Ed. 250, FEHM 335 and 435, Int. Env. 430, Clo. and Text. 430, Ind. Ed. 105, Ind. Ed. 319, and ArtDs. 346R.

Minor Requirements

A minor in interior environment may be obtained upon completion of the following 15 credit hours: Int. Env. 240, 330, 331, 340, and 425. Other courses may be substituted with the approval of the department chairman.

Suggested Four-Year Outline

Freshman	Hours
Relig. 121, 122	4
Engl. 111	3
Physical education	1
Health 130	2
Social science	6
Des. Tech. 104	2
Hist. 170	3
Int. Env. 240	3
ArtDs. 102	2
Electives	6
	32

Sophomore	Hours
Religion	4
Engl. 215	3
Physical education	1
Biological science	6
Clo. and Text. 260	3
ArtDs. 312	3
Int. Env. 237, 238R, 350	9
Electives	4
	33

Junior	Hours
Religion	4
Physical science	6
FEHM 335, 435	5
Int. Env. 330, 331, 340, 360	12
Electives	6
	33

Senior	Hours
Religion	2
Mathematics, logic, or language	6 or 8
Clo. and Text. 430	3
ArtDs. 412	2
Int. Env. 425, 440, 460, 480, 499R	15
Electives	3
	31 or 33

Courses

237. Rendering I. (3:2:4) Prerequisite: ArtDs. 102. Kinateder, Sumerix

An introductory course in the methods of interior presentation. Students are instructed in drawing techniques, with an emphasis on the use of pencil, ink-line, markers, and pastels in rendering.

238R. Rendering II. (2:3:4) Prerequisite: Int. Env. 237. Kinateder, Sumerix

A continuation of Int. Env. 237, with emphasis on quality and professionalism.

240. Introduction to Interior Design. (3:3:0) Home Study also. (G-HA) Allen, Collins, Dansie, Heaton, Hollingshead, R. Kinateder, Mills, Nady, Offield, Richards, Riggs, Stimpson, Taylor, West, Wymore.

An introductory course designed to develop good taste in planning and decorating the home, with an emphasis on the use of color and fabric.

330. Survey of Historical Furnishings. (3:3:0) Home Study also. (G-HA) Prerequisites: Int. Env. 240, Clo. and Text. 260, ArtDs. 312. P. Allen

A study of the residential architecture, furniture, and the decorative arts from ancient times to 1900, and their relevance to today's interiors.

331. Contemporary Furnishings. (3:3:0) Home Study also. (G-HA) Prerequisite: Int. Env. 330. Stimpson

A study of the residential architecture, furniture, and the decorative arts since 1900, with an emphasis on the modern interior.

340. Materials and Components of the Interior. (3:3:0) Prerequisite: Int. Env. 240. Dansie

A study of the specific ingredients of the interior environment, with emphasis on construction and use.

350. Residential Space Planning. (3:2:4) (m) Prerequisites: Int. Env. 237, 238R, 240. Baker, Viehweg

Laboratory exercises in planning, design and layout of residential spaces, with emphasis on traffic flow, pattern and texture, lighting techniques, and use of materials and their practical relationships.

360. Interior Planning Laboratory I. (3:2:3) Prerequisites: All interior environment requirements through 340. West

A studio class with lectures and supervised exercises in the application of principles and elements of design in planning complete interiors.

425. Textiles for the Interior. (3:2:3) Prerequisites: Int. Env. 240, Clo. and Text. 260. Offield

Study and application in the fundamentals of silk-screening, batik, macrame, block-printing, tie-dyeing, and stitchery, with emphasis on their use in the home.

430. Advanced History of Residential Interior Architecture and Furnishings. (3:3:0) (G-HA m) Prerequisites: Int. Env. 330, 331. P. Allen, Dansie, West

Advanced research in the study of residential architecture, furniture, and the decorative arts, both historic and contemporary.

440. Work Procedures and Professional Practices. (3:3:0) Prerequisites: All interior environment requirements through 360. Gustafson

Business aspects of the interior design profession aimed at assisting both the designer and consumer.

460. Interior Planning Laboratory II. (3:2:3) Prerequisite: Int. Env. 360. Viehweg

Advanced practices in planning the interior.

480. Senior Field Work. (3:2:3) Prerequisites: All interior environment requirements through 460. Dansie

A course in which students are given experience in the business of interior design through apprenticeship in retail establishments, and working directly with clients.

499R. Senior Project. (1-3:2:3) Prerequisites: All interior environment requirements through 480. West

International Relations

Associate Professor: Taylor (Coordinator, 120 FOB).

International Relations is an interdepartmental program which allows the student to prepare for a career in the international field. The program allows for a double major or a major and minor combination leading to a B.A. degree. Interested students should seek career counseling from the program coordinator, and majors should register with the program secretary (117 FOB) as early as possible.

The program is designed to prepare the student for an international career or for advanced study in international relations. Students will be required to complete the requirements for the major, to acquire a basic knowledge of a modern language, and to develop an integrated understanding of international relations. To enable the student to compete more effectively for a career, the student will be introduced to the study of intercultural relations and international politics in fields such as anthropology, psychology, sociology, geography, history, economics, and political science. This broad interdisciplinary training is also designed to prepare the student for advanced study in international relations.

Students majoring in family economics and home management, biological and agricultural education, animal science, business management, food science and nutrition, industrial technology, nursing, and other such fields are encouraged to investigate the International Relations Program as preparation for their possible employment with the State Department, the Agency for International Development, the United Nations, or other such national and international agencies.

Requirements for a Major

The program requires 30 hours, as described below, plus 16 hours (or the equivalent) of a modern foreign language. Equivalency is defined as conversational fluency.

Required Courses

Political Science
170 Introduction to International Politics
370 Theory of International Relations
375 International Organizations

International Relations
499 Senior Seminar in International Relations

Recommended Course

Political Science
300 Political Inquiry

Elective Courses

Fifteen or 18 hours chosen from among the courses listed below, drawn from at least three areas other than the departmental major.

Requirements for a Minor

Required Courses

Political Science
170 Introduction to International Politics
370 Theory of International Relations

Elective Courses

Nine hours chosen from among the courses listed below:

Anthropology

101	(3)	Introduction to Anthropology
105	(3)	Introduction to Social Anthropology
330	(3)	Peoples of Africa
340	(3)	Peoples of the Mideast
350	(3)	Peoples of South and East Asia
355	(3)	Chinese Culture and Society
432	(3)	Political and Legal Institutions—Primitive Peoples
433	(3)	Economic Institutions

Asian Studies

101	(3)	Introduction to Asia
499	(3)	Senior Seminar in Asian Studies

Business Management

430	(3)	Introduction to International Business
431	(3)	International Marketing
432	(3)	International Corporate Finance

Communications

580	(2)	Comparative World Communication Systems
581	(2)	International Communication Problems

Economics

330	(3)	Economic Development
341	(3)	Comparative Economic Systems
358	(3)	International Trade and Finance
535R	(3 ea.)	Economic Problems of Selected Areas
541	(3)	Advanced Comparative Economic Systems
558	(3)	Theory of International Trade and Finance

Geography

120	(3)	Geography and World Affairs
231	(3)	Economic Geography
332	(2)	Resource Management
441	(3)	Political Geography
455	(3)	Latin America
460	(3)	Europe
465	(3)	USSR and Its Satellites
470	(3)	Asia
475	(3)	Africa
480	(2)	Australia and New Zealand
580	(2)	Geography of Underdeveloped Areas

History

322	(3)	Nineteenth-Century Europe
323	(3)	Europe in the Twentieth Century
329	(3)	The Austrian Empire and Eastern Europe
331	(3)	The USSR and Eastern Europe
332	(3)	France
333	(3)	Modern Germany
334	(3)	Spain
335	(3)	England
341	(3)	Modern Asia
342	(3)	Korea
344	(3)	Modern China
346	(3)	Modern Japan
347	(3)	India

348 (3) Southeast Asia
352 (3) History of Latin America II
424 (2) European Diplomatic History to 1815
425 (2) European Diplomatic History since 1815
429 (3) European Intellectual History since the Enlightenment
433 (2) Twentieth-Century Germany: Hitler and Beyond
440 (3) Communist China
453 (3) Mexico and the Caribbean
454 (3) Argentina, Brazil, and Chile
455 (3) Northern South America
459 (3) Inter-American Relations
474 (3) U.S. Diplomatic History

Language and Literature (no more than 5 hours from the following list)

English
338 (3) European Novel

Humanities and Comparative Literature
240 (3) Introduction to the Humanities of Asia
338 (3) European Novel
340R (3) Russian Literature in Translation
341R (3) Masterpieces of German Literature
342R (3) Chinese Literature in Translation
343R (3) Japanese Literature in Translation

Chinese
342R (3) Chinese Literature in Translation
443 (4) Modern Chinese Literature
444 (4) Readings in Chinese Social Sciences
445 (3) Chinese Civilization

Japanese
343R (3) Japanese Literature in Translation
443 (3) Modern Japanese Literature
445 (3) Japanese Civilization

Korean
340 (4) Introduction to Korean Literature

Russian
340R (3) Russian Literature in Translation
440 (2) Survey of Russian Literature from the Beginning through the Eighteenth Century
441 (3) Survey of Russian Literature in the Nineteenth Century
442 (3) Survey of Russian Literature in the Twentieth Century

French
301 (3) Introduction to French Literature
440 (4) Historical Survey of French Literature
441 (3) Survey of French Literature and Culture
442 (3) Survey of French Literature and Culture
445 (3) Introduction to French Civilization

Italian
301 (3) Introduction to Italian Literature
440 (4) Survey of Italian Literature
445 (3) Introduction to Italian Civilization
485 (3) Italian Literature of the Twentieth Century

Dutch
340 (4) Introduction to Dutch Literature

German
341R (3) Masterpieces of German Literature in Translation
401 (3) Cultural History of German-speaking Peoples
440 (4) Survey of German Literature and Culture
444 (3) German Literature in the Twentieth Century

Portuguese
441 (4) Survey of Portuguese Literature
445 (2) Iberian Culture
451 (4) Survey of Brazilian Literature
455 (2) Ibero-American Civilization

Scandinavian
344R (3) Masterpieces of Scandinavian Literature
441 (4) Dano-Norwegian Literature
445 (4) Swedish Literature
447 (4) Finnish Literature

Spanish
301 (4) Introduction to Spanish Literature
441 (4) Survey of Spanish Literature
445 (2) Iberian Civilization
451 (4) Survey of Hispanic-American Literature
454 (3) Hispanic-American Novel
455 (2) Ibero-American Culture
485 (3) Introduction to Contemporary Spanish Literature

Political Science
150 (3) Comparative Government and Politics
350R (3) Communist and Totalitarian Government and Politics
351R (3) Parliamentary Government and Politics
352R (3) Third-World Government and Politics
359R (3) Topics in Comparative Government and Politics
373 (5) International Law
377R (3) Foreign Relations
378R (3) International Systems
379R (3) Topics in International Relations

Psychology
350 (3) Introduction to Social Psychology
570 (3) Computer Use in the Behavioral Sciences

Sociology
205 (3) Applied Social Statistics
245 (3) World Populations
350 (3) Introduction to Social Psychology
522 (3) Personality: Culture and Society

Statistics
221 (3) Principles of Statistics

Course

499. Senior Seminar in International Relations. (3:3:0) (G-SS) Prerequisite: senior standing and near completion of major.

Research and writing for senior students majoring in international relations. Designed to integrate the broad field of international relations.

Languages

Foreign Language Study. The study of a foreign language is a unique educational experience. It is a means by which the student can participate in the inner life of another people and share their culture. Through the study of a foreign language, the student also comes to learn his own language better. The poet and philosopher Goethe said, "He who knows no other language, knows not his own."

The objectives of the courses in the language departments are as follows:

1. **General:** To teach the student to understand and to speak a language with facility and to develop skill in reading and writing. To provide a survey of foreign literatures and to acquaint the student with foreign cultures.

2. **Specific:** To prepare students for the teaching profession, government work at home and abroad, international trade, LDS missions in foreign countries, and research leading to advanced degrees.

Language Requirement for Graduation and Information for High School Graduates. Successful completion of a 201 language class or a more advanced class will fulfill the language requirement for graduation. High school graduates who have had two years of foreign language study may enroll in a 201 course in the language studied, or they may choose to begin with a 102 course. Those who have had one year of foreign language study in high school may enroll for a 102 course. A 201 course and a 102 course (or the equivalent of 102 in high school training) are required to fulfill the 6- to 8-hour language requirement for graduation. Students who enroll for a 101 course may count these hours toward graduation, but a 101 course does not count toward the general education requirement. For further information or consultation, see the placement advisers for the language departments at registration time.

Library and Laboratory Facilities. The language departments have five library facilities and language laboratories, permitting emphasis on the most modern language teaching techniques. The tape libraries contain some of the best dramatic and poetic works in the principal languages of the world.

Credit for Foreign Residence. Students who have had foreign residence may, with the consent of the language departments concerned, obtain a maximum of 12 to 16 hours of special foreign language credit. This may be done by successfully completing a more advanced course in the language and by passing an examination administered by the department. The credit is available upon payment of a special fee. Foreign students are not permitted to obtain credit in this way for their native language.

Major and Minor Requirements. Courses which fulfill the requirements for an undergraduate major or minor are listed under each separate language offering. Areas that generally serve as minors include second foreign languages, English, linguistics, humanities, one of the social sciences, or one of the fine arts.

Prospective Graduate Students. A reading knowledge of a second language is required of M.A. candidates. It is advisable to begin work on a second language no later than the junior year.

Graduate Assistantships. Graduate assistantships are available to language graduates whose undergraduate records, especially in languages, are unusually good. Applicants for assistantships must have an overall GPA of 3.0 or better and must have completed the following language courses: 326 (Phonetics and Pronunciation) and 377 (Secondary Teaching Procedures). The deadline for application in March 1.

Laboratory Assistantships. Well-qualified undergraduate majors may apply for laboratory assistantships. Priority will be given to those who have completed the 326 and 377 courses in their language specialties.

Asian and Slavic Languages

Professor: Rogers.
Associate Professors: Gubler (Chairman, 250 FOB), Jarvis, Williams.
Assistant Professors: Beaman, Browning, Lee.

The Department of Asian and Slavic Languages offers instruction in the following languages:

Chinese
Japanese
Korean
Russian
Thai

The Bachelor of Arts degree is available in Chinese, Japanese, and Russian.

Course

490R. Individual Study in Asian Literatures. (1-3:Arr.:Arr. ea.) Prerequisite: lower-division courses, mission, or commensurate experience.
Assignments are made to fit the individual needs of advanced students. By permission only.

Chinese

A major in Chinese requires at least 32 hours beyond the first-year courses as follows: Chinese 201, 211, 301, 311, 321, 322, 342R, 441, 442, 443 (or 444), and 445. The requirement of a departmental minor in Chinese totals at least 14 hours beyond Chinese 301.

Courses

101, 102. First-Year Mandarin. (4:4:2 ea.) (m) Browning, Lee
Designed for those who have had no Chinese. Pronunciation, fundamentals of grammar. Chinese characters recognition (101) and writing (102). Special emphasis on conversation and building of a substantial vocabulary.

111, 112. Cantonese. (4:0:0) Prerequisites: Chinese 201 or 301.
By special examination only after the prerequisite is met.

201. Intermediate Modern Chinese I. (4:4:1) (m) Prerequisite: Chinese 102. Browning, Lee
Reading, conversation, vocabulary building, special emphasis on writing of characters.

211. Second-Year Conversation. (2:2:0) Prerequisite: Chinese 102 or consent of instructor. Browning, Lee

301. Intermediate Modern Chinese II. (4:4:0) Prerequisite: Chinese 201 or consent of instructor. Browning, Lee

311. Third-Year Conversation. (2:2:0) Prerequisite: Chinese 211 or consent of instructor. Browning, Lee
Advanced conversation.

321, 322. Selected Readings and Composition. (3:3:0 ea.) Prerequisite: Chinese 301 or consent of instructor. Lee
Introductory readings in modern Chinese, with emphasis on the writing of more analytical papers.

342R. (Chinese-Hum.) Chinese Literature in Translation. (3:3:0) (G-HA) Williams
A survey of major literary genres from the beginning to the present. Taught in English; readings in English and, when competency exists, in Chinese.

441, 442. Classical and Documentary Chinese. (4:5:0 ea.) Prerequisite: Chinese 301 or consent of instructor. Williams
Intensive reading and interpretation of documentary texts; introduction to syntax and stylistic patterns of documentary Chinese.

443. Modern Chinese Literature. (4:4:0) (G-HA) Prerequisite: Chinese 301 or consent of instructor. Lee, Williams
This course is designed to enhance the overall language competency through readings of modern texts selected from a wide range of styles and genres.

444. Readings in Chinese Social Sciences. (4:4:0) Prerequisite: Chinese 301. Lee, Williams
Extensive reading of modern Chinese writings in history and the social sciences.

445. Chinese Civilization. (3:3:0) (G-HA) Prerequisite: consent of instructor. Williams
Introduction to the institutions, culture, and fine arts of China.

490R. Individual Study in Chinese. (1-3:Arr.:0 ea.) Prerequisite: Chinese 322 or consent of instructor.
Assignments made to fit the individual needs of the advanced student.

495. Senior Seminar for Majors. (2:2:0) Prerequisite: at least 6 hours of Chinese literature. Williams

Japanese

A major in Japanese requires at least 32 hours beyond the first-year courses as follows: Japanese 201, 211, 301, 311, 321, 322, 343R, 443, 444, 445, and 495. The requirement for a departmental minor in Japanese totals 14 hours beyond Japanese 301.

Courses

101, 102. First-Year Japanese. (4:4:1 ea.) (m) Staff
Constant study of the writing systems. Fundamentals of grammar and the building of a substantial vocabulary. Easy conversation and composition throughout.

201. Second-Year Japanese. (4:4:2) (m) Prerequisite: Japanese 102 or consent of instructor. Beaman, Staff
Reading texts representative of various modern written styles. Further practice in composition, conversation, and grammar.

211. Second-Year Conversation. (2:2:0) Prerequisite: Japanese 102 or consent of instructor.

301. Introduction to Japanese Literature. (4:4:0) (G-HA) Prerequisite: Japanese 201 or equivalent. Beaman

311. Third-Year Conversation. (2:2:0) Prerequisite: Japanese 301 or consent of instructor.

321. Selected Readings and Composition. (3:3:0) Prerequisite: Japanese 301 or consent of instructor. Beaman
Introductory readings in modern literary Japanese, with emphasis on the writing of more analytical papers.

322. Selected Readings and Composition. (3:3:0) Prerequisite: Japanese 321 or consent of instructor. Beaman
Study of scholarly writings in Japanese.

343R. (Hum.-Japanese) Japanese Literature in Translation. (3:3:0) (G-HA) Beaman
A historical survey of the major literary works from the eighth to the nineteenth centuries. Taught in English; readings in English and, when competence exists, in Japanese.

443, 444. Modern Japanese Literature. (3:3:0 ea.) (G-HA m) Prerequisite: Japanese 321 or consent of instructor. Beaman
From the nineteenth century to the present.

445. Japanese Civilization. (3:3:0) (G-HA m) Beaman, Staff
A study of aspects of culture, the visual arts, and religious and philosophical thought that produce the unique Japanese character.

490R. Individual Study in Japanese. (1-3:Arr.:0 ea.)
Assignment made to fit the individual needs of the advanced student.

495. Senior Seminar for Majors. (2:2:0) Prerequisites: all 300-level courses required for major. Beaman
An in-depth application of research methods in Japanese sources and bibliographic practice, with the opportunity to engage in a research project appropriate to the student's specialization.

Korean

Course

340. Introduction to Korean Literature. (4:4:0) (G-HA) Prerequisite: Korean mission or consent of instructor.
Readings from the best Korean literature. An introduction to basic literary concepts.

Russian

The following courses beyond Russian 301 are required for the major in Russian: 311, 321, 322, 326, 345, 411, 412, 440, 441, 442, 495.

Minors Recommended for Russian Majors

All teaching majors are required to work under Option 1. Nonteaching majors have a choice of Option 1 or Option 2.

Option 1. Complete a minor as described by the minor department. Minors may be selected to fit the individual needs of the student upon consultation with the major adviser. (Minors for students who seek teaching certificates must be chosen from those areas approved by the TCO.) Recommended areas include a second modern foreign language, English, European studies, comparative literature, humanities, social studies, business, and the fine arts.

Option 2. Majors in the department who are not seeking teaching certificates need not have a formal minor but must complete at least 14 hours from among the following related fields: a second modern foreign language (upper-division courses only), English (excluding 100-level courses), linguistics, European history or geography, humanities, comparative literature, and other areas approved by the major adviser.

For the minor, 13 hours past the 301 level are required as follows: 311, 321, 322 or 326, 345, 441 or 442.

Strongly recommended additional courses are: Engl. 251, Fundamentals of Literature, or 351, The Criticism and Appreciation of Literature; Hum. 310, Introduction to Comparative Literature; Ling. 324, Introduction to Linguistics (Traditional) and/or 325, Introduction to Linguistics (Modern); Hist. 330, Tsarist Russia, and/or 331, The USSR and Eastern Europe; Geog. 465, USSR and Its Satellites.

Courses

101, 102. First-Year Russian. (5:5:3 ea.) (m)

185, 186. Russian for Reading. (2:2:0 ea.)
Reading proficiency in technical Russian. No prerequisites.

201. Intermediate Russian. (5:5:3) (m) Prerequisite: Russian 102 or consent of instructor, based on prior Russian language experience.
Grammar review and conversation.

301. Introduction to Russian Literature. (3:3:2) (G-HA m) Prerequisite: Russian 201 or consent of instructor.
Discussion in Russian of widely varying readings, both expository and literary.

311. Intermediate Conversation. (2:2:1) (m) Prerequisite: Russian 301 or consent of instructor.
Discussion in Russian of topics on Russian culture.

321, 322. Grammar and Composition. (3:3:0 ea.) (m) Prerequisite: Russian 301 or equivalent. Gubler, Jarvis, T. F. Rogers

326. Pronunciation and History of the Russian Language. (2:2:1) (m) Prerequisites: Russian 101 and 102 or consent of instructor. Gubler, Jarvis
To be taken as early as possible in the student's program.

340R. (Hum.-Russian) Russian Literature in Translation. (3:3:0) (G-HA)
Introduction to philosophical themes, social issues, characterizations and artistry of nineteenth- and twentieth-century Russian authors. For non-majors.

345. Cultural Survey of Russia. (3:3:0) (G-HA m) Jarvis, T. F. Rogers
Study in English of Slavic culture, with emphasis on Russia.

377. Teaching Procedures. (3:3:1) Prerequisites: Ed. 301, Russian 321, or equivalent. Jarvis

411, 412. Advanced Conversation. (2:2:1 ea.) (m) Prerequisite: Russian 301 or consent of instructor.
Discussion in Russian of assigned literary texts from the nineteenth and twentieth centuries, respectively.

440. Survey of Russian Literature from the Beginning through the Eighteenth Century. (2:2:0) (G-HA m) Gubler, T. F. Rogers
Lectures in English; readings in Russian for majors only.

441. Survey of Russian Literature in the Nineteenth Century. (3:3:0) (G-HA m) Prerequisite: Russian 301 or equivalent. Gubler, T. F. Rogers

442. Survey of Russian Literature in the Twentieth Century. (3:3:0) (G-HA m) Prerequisite: Russian 301 or equivalent. Gubler, T. F. Rogers

479. Secondary Student Teaching. (4-8:1:20-40) Prerequisites: Ed. 301; Russian 321, 377. Jarvis

490R. Individual Study in Russian. (1-3:Arr.:Arr. ea.) Prerequisite: advance consent of instructor.
Assignments made to fit the needs of the advanced student.

495. Senior Seminar for Majors. (2:2:0) Prerequisites: all 300-level courses required for the major.
An in-depth application of the language in a teaching situation or in an investigation either of theoretical linguistics or of a particular author, genre, or period; training in research, bibliography, and critical analysis.

Thai

Course

201. Intermediate Thai Reading and Conversation. (4:4:0) Prerequisite: consent of instructor.
Reading, review of grammar, conversation, and vocabulary building.

Classical, Biblical, and Middle Eastern Languages

Professors: J. Reuben Clark III, Nibley.
Associate Professor: Phillips (Chairman, 240 B-34).
Assistant Professor: Mackay.
Instructors: Duckwitz, Pack, Sherwood.

The Department of Classical, Biblical, and Middle Eastern Languages offers instruction in Classical Civilization and in the following languages:

Akkadian
Arabic
Aramaic
Coptic
Egyptian
Greek
Hebrew
Latin
Syriac
Turkish
Ugaritic

The classical languages, Greek and Latin, are indispensable tools for prospective students in classics, biblical and early Christian studies, ancient history, romance philology, and comparative literature. They are also strongly recommended for the study of linguistics and all literature of the Western world. The biblical and Middle Eastern languages are not only indispensable for research but are also vitally important to the student who wishes to experience the life and the unique cultures of the Middle East.

The Department of Classical, Biblical, and Middle Eastern Languages offers the Associate of Arts degree in classical civilization, the Bachelor of Arts degree in Greek and Latin, and the Master of Arts degree in classics.

Classical Civilization

The following courses presuppose no knowledge of the Greek or Latin languages and are open to all students. They are especially recommended for students who desire an understanding of the ancient tradition underlying modern literature in the Western world.

Requirements for the Associate of Arts Degree in Classical Civilization

I. Classics and Ancient History Courses

Classical Language Greek or Latin 101, 102, 201, 301	16
Classical Civ. 341	2
Classical Civ. 441	3
Classical Civ. 442	3
Classical Civ. 461	2
Greek 445 or Latin 441 and 422	3 or 6
Hist. 304 or 307	3
Total hours	32 or 35

II. General Education Courses

Relig. 121, 122, 211*, 212*	8
Physical education	1
Engl. 111, 212, (or 215 or 251*)	6
Hist. 170 (or exemption)	3
Health	2
Biological science	3
Physical science	3
	26

*These courses are especially recommended.

Other recommended courses, but not allowed as substitutions to the classics and ancient history courses listed above are—

ArtDs. 402 Classical Art
Phil. 221 History of Ancient Philosophy

Course

341. Greek and Roman Mythology. (2:2:0) (G-HA m) Clark, Mackay, Phillips
Study of the Greek and Roman gods, goddesses, and myths.

342. Oriental Mythology. (2:2:0) (G-HA m) Williams
Discussions of the myths, legends, and folkloric traditions in Oriental cultures.

441. Greek Literature in English Translation. (3:3:0) (G-HA) Mackay, Phillips

442. Latin Literature in English Translation. (3:3:0) (G-HA) Clark, Mackay, Phillips

443. Latin and Greek Literature in the Middle Ages. (3:3:0) Clark, Mackay
A survey of the influence of the classical heritage on medieval literature, with emphasis on history, epic, romance, theater, and writings of church fathers.

461. Greek Drama in English Translation. (2:2:0) Phillips
A study of selected plays of Aeschylus, Sophocles, Euripides, Aristophanes, and Menander.

Greek

A major in Greek requires 32 hours of course work, which must include Greek 201, 301, 321, 431, 432, 445; Classical Civ. 441; either Classical Civ. 341 or 461; and 7 hours from Greek 411, 429, 441, 442. A departmental minor in Greek requires 20 hours of course work in Greek beyond the first year.

Courses

101, 102. Elementary Greek. (4:4:0 ea.) (m) Mackay, Phillips

201. Intermediate Greek Reading and Composition. (4:4:1) (m) Mackay

301. Introduction to Greek Literature. (4:4:0) (G-HA) Prerequisite: Greek 201 or consent of instructor. Mackay

321. Third-Year Grammar and Composition. (3:3:0) (m) Prerequisite: Greek 301 or equivalent. Mackay

Exercises in the composition of easy Greek prose, correlated with readings in the Attic Orators.

411. New Testament in Greek: Gospels. (3:3:0) Prerequisite: one year of college Greek. Mackay, Phillips

429. Greek Stylistic and Literary Analysis. (3:3:0) (G-HA m) Prerequisite: Greek 322 or equivalent. Mackay, Phillips

Exercises in criticism of Greek prose and poetry.

431, 432. Masterpieces of Greek Literature. (3:3:0 ea.) (G-HA m) Prerequisite: Greek 301 or equivalent. Mackay, Phillips

Reading of major Greek authors, especially Homer and Herodotus.

441, 442. Survey of Greek Literature and Culture. (3:3:0 ea.) (G-HA m) Prerequisite: Greek 301. Mackay, Phillips

A survey of Greek literature and culture from Homer to the Alexandrian period with lectures and readings.

445. Classical Greek Culture. (3:3:0) (G-HA m) Mackay, Phillips

Conducted in English.

490R. Individual Study in Greek. (1-3:Arr.:0 ea.) Prerequisite: Greek literature, excluding 301.

561. Attic Orators. (3:3:0) Prerequisite: consent of instructor. Mackay, Phillips

612. Readings in Greek: Paul's Letters. (3:3:0) Prerequisite: one year of Greek or consent of instructor. Mackay, Phillips

613. Readings in Greek: Epistles and the Apocalypse. (3:3:0) Prerequisite: one year of Greek or consent of instructor. Mackay, Phillips

665. The Greek Historians. (3:3:0) Prerequisite: consent of instructor. Mackay, Phillips

671. Homer. (3:3:0) Prerequisite: consent of instructor. Mackay, Phillips

679. The Greek Dramatists. (3:3:0) Prerequisite: consent of instructor. Mackay, Phillips

694R. Seminar in Literature. (3:3:0) Prerequisite: consent of instructor. Mackay, Phillips

699. (Greek-Latin) Thesis for Master's Degree in Classics. (6-9:Arr.:0)

Hebrew

Courses

101, 102. First-Year Hebrew. (4:4:2 ea.) (m) Pack

A beginning course in modern Hebrew as spoken in Israel today.

201. Second-Year Hebrew. (4:4:2) (m) Prerequisite: Hebrew 101, 102, or equivalent. Pack

301. Selected Readings. (4:4:2) (m) Prerequisite: Hebrew 201 or equivalent.

441, 442. Classical Hebrew. (4:4:0 ea.) (m) Pack

681. Studies in the Hebrew Old Testament. (3:3:0) Prerequisite: consent of instructor. Pack

682. Studies in Hebrew. (3:3:0) Prerequisite: Hebrew 681. Pack

Latin

A major in Latin requires 32 hours of course work, which must include Latin 201, 301, 321, 322, 431, 432, 441, 442; Classical Civ. 341 and 442; and either Latin 429 or 561. A teaching major in Latin must also include Latin 377. A departmental minor in Latin requires 20 hours of course work in Latin beyond the first year. A teaching minor in Latin must also include Latin 377.

Courses

101, 102. First-Year Latin. (4:4:0 ea.) (m) Clark, Sherwood

Designed for those who have had no Latin. Mastery of pronunciation, declensions, and conjugations. Correlation of Latin originals with English derivatives. Graded reading. Characteristics of Roman civilization.

111, 112. Beginning Latin—Accelerated. (4:4:0 ea.)

201. Second-Year Latin. (4:4:0) (m) Prerequisite: Latin 102 or three units of Latin in high school. Clark, Sherwood

Readings from Caeser, Livy, etc., with a review and continuation of grammar.

301. Introduction to Latin Literature. (4:4:0) (G-HA m) Prerequisite: Latin 201. Clark, Sherwood

315. Prelegal Latin. (2:2:0) Prerequisite: consent of instructor. Clark, Sherwood

Recommended for prelegal students.

316. Elements of Technical and Scientific Terminology. (3:2:0) Prerequisite: consent of instructor. Clark, Phillips

Designed for premedical and predental students and students in the physical and natural sciences.

317. Latin for Archivists and Genealogical Researchers. (3:1:1) Phillips, Sherwood

Fundamentals of Latin needed by archivists and those engaged in genealogical research.

321, 322. Third-Year Grammar and Composition. (3:3:0 ea.) Prerequisite: Latin 301 or 112 or equivalent. Mackay, Sherwood

377. Secondary Teaching Procedures. (3:3:1) Prerequisites: Ed. 301 and Latin 322 or equivalent. Clark

Skills mastery, hearing, speaking, reading, writing, and identification of teacher-pupil activities required for conceptual learning. Lectures, demonstrations, and application of linguistic techniques to practical classroom requirements.

429. Latin Stylistic and Literary Analysis. (3:3:0) (G-HA) Prerequisite: Latin 322 or equivalent. Mackay, Phillips

431, 432. Masterpieces of Latin Literature. (3:3:0 ea.) (G-HA m) Prerequisite: Latin 301 or 112 or equivalent or consent of instructor. Phillips, Sherwood

441, 442. Survey of Latin Literature and Culture. (3:3:0 ea.) (G-HA) Clark, Phillips, Sherwood

Conducted in English.

479. Secondary Student Teaching. (4-8:1:20-40) Prerequisites: Ed. 301; Latin 321, 377. Clark

490R. Individual Study in Latin. (1-3:Arr.:0 ea.)

561. Medieval Latin. (3:3:0) Prerequisite: Latin 301 or 112 or equivalent. Mackay

621. Romance Philology. (3:3:0) (m) Clark

661. Cicero. (3:3:0) Clark, Mackay, Phillips

665. The Latin Historians. (3:3:0) Clark, Mackay, Phillips

671. Virgil. (3:3:0) Clark, Mackay, Phillips

675. The Latin Poets. (3:3:0) Clark, Phillips

679. The Latin Dramatists. (3:3:0) Clark, Phillips

681, 682. The Latin Fathers. (3:3:0 ea.) Prerequisite: consent of instructor. Mackay, Phillips

690R. Directed Readings. (1-2:Arr.:0 ea.)

692R. Seminar in Philology. (2:2:0 ea.) Clark, Mackay, Phillips

694R. Seminary in Literature. (2:2:0 ea.) Clark, Phillips

699. (Greek-Latin) Thesis for Master's Degree in Classics. (6-9:Arr.:0)

Middle Eastern Languages

Course

321R. Middle Eastern Languages. (3:3:0 ea.) Prerequisite: consent of instructor.

Middle Eastern Languages: Akkadian, Arabic, Aramaic, Coptic, Egyptian, Syriac, Turkish, Ugaritic.

Montgomery, Nibley, Pack, Van Wagoner

French and Italian

Professors: Brown, Green, Lee (emeritus).
Associate Professors: H. Clark, Kimball, Lambert, Turner (Chairman, 357 MCKB).
Assistant Professors: Ashford, Jensen, Slade, Spartano.
Instructors: Boynton, Tarr, Thompson.

Degrees Offered

The Department of French and Italian offers the Bachelor of Arts in both Italian and French. The Master of Arts and the Doctor of Philosophy degrees are offered in French. For graduate degree requirements, see the **Graduate School Catalog.**

French

Twenty-nine hours of course work beyond 201 are required for a departmental major: 301, 321, 322, 326, 401, 441, 442, 445 plus the student's choice of three or more courses from among the following: 377, 429, 446, 447, 448.

Seventeen hours of course work are required for a departmental minor: 301, 311, 321, 326, 440, and either 429 or 445. Teaching majors and minors see French under the Department of Education listings.

No D credit will be accepted as part of the major or minor requirement.

Half-Year in Paris

French majors and minors who have not lived in French-speaking countries are encouraged to participate in the University-sponsored half-year in Paris. They may choose the January-June program or the June-December program. This foreign residence provides excellent opportunities for developing language proficiency and for better acquaintance with the history and culture of France.

Intensive Program

The department offers an intensive course in French for those who have taken French 101 and 102 or the equivalent. The student will enroll for 9 credits that include French 201, 211, and 301, all to be taken during a 2-hour block in the same semester. Majors and minors are urged to apply for this program.

Minors Recommended for French Majors

(All teaching majors are required to work under Option I. Nonteaching majors have a choice of Option I or Option II.)

Option I. Complete a minor as described by the minor department. Minors may be selected to fit the individual needs of the student upon consultation with the major adviser. (Minors for students who seek teaching certificates must be chosen from these areas approved by the TCO.) Recommended areas include a second modern foreign language, Latin, Greek, English, European studies, comparative literature, humanities, social studies, business, or one of the fine arts.

Option II. Majors in the department who are not seeking teaching certificates need not have a formal minor, but must complete at least 14 hours from among the following related fields: a second modern foreign language, (upper-division courses only), Latin, Greek, English (excluding 100-level courses), linguistics, classical civilizations, European history or geography, humanities, archaeology, comparative literature, or other areas approved by the major adviser.

Courses

95R. Beginning French for Graduate Students. (0:5:0 ea.)

101, 102. First-Year French. (4:4:4 ea.)

Designed for those who have had no French. Daily development of the four basic language skills: comprehension, speaking, reading, and writing.

201. Intermediate French Reading and Conversation. (4:4:4) Home Study also. (m) Prerequisite: French 102, two years of French in high school, or consent of instructor.

211. Second-Year Conversation. (2:2:2) Prerequisite: French 102 or consent of instructor. May be taken concurrently with 201.

301. Introduction to French Literature. (3:3:0) Home Study also. (G-HA m) Prerequisite: French 201 or consent of instructor.

311. Third-Year Conversation. (2:2:1) Prerequisite: French 211 or consent of instructor. May be taken concurrently with 301.

321. Third-Year Grammar. (3:3:0) Home Study also. Prerequisite: 16 hours of French or equivalent.

322. Third-Year Composition. (2:2:0) Prerequisite: French 321.

326. French Phonetics and Pronunciation. (2:2:2) Prerequisite. French 301.

345. Contemporary Culture. (3:1:3) (G-HA) Prerequisite: French 102 or equivalent.

Contemporary French culture through a study of the people and their customs and institutions, as experienced abroad.

377. French Language Teaching Procedures. (3:2:2) Prerequisites: French 321, 326, 445 or 440; Ed. 301 for students planning to certify. (Prospective teachers are advised to take French 377 as near the end of their major course work as possible and just before student teaching.)

Mastery of teaching skills specific to foreign language instruction. Lectures, demonstrations, practice in instruction.

401. Bibliography and Research Techniques for Undergraduates. (1:1:0) Should be taken concurrently with 301.

411. Fourth-Year Conversation. (2:2:1) Prerequisite: French 311 or its equivalent, as determined by adviser.

429. Introduction to Stylistic and Literary Analysis. (3:3:0) (G-HA) Prerequisites: French 321 and 322 or their equivalents.

Refinement of writing skills based on stylistic analysis and explication de textes.

440. Historical Survey of French Literature. (4:4:0) (G-HA) Prerequisite: French 301 or consent of instructor.

441, 442. Survey of French Literature and Culture. (3:3:0 ea.) Home Study also. (G-HA) Prerequisite: French 301 or consent of instructor.

General view of literary periods, movements, and social backgrounds, with representative readings. It is recommended that 441 be taken before 442.

445. Introduction to French Civilization. (3:3:0) (G-HA) Prerequisite: French 301 or consent of instructor.

446. French Poetry. (3:3:0) (G-HA m) Prerequisites: French 441 and 442.

447. French Dramatic Literature. (3:3:0) (G-HA m) Prerequisites: French 441 and 442.

448. French Literary Prose. (3:3:0) (G-HA m) Prerequisites: French 441 and 442.

479. Secondary Student Teaching. (4-8:0:20-40) Prerequisites: Ed. 301, French 321, 377.

490R. Individual Study in French. (1-3:Arr.:Arr. ea.) Assignments are made to fit the individual needs of the advanced student. Not to be taken in lieu of classes.

511. Advanced Conversation for Students of Institute. (0:2:1)

520. Teaching French Grammar for Students of Institute. (2:2:0)

601. Bibliography and Research Techniques. (1:1:0)

□**Latin 621. Romance Philology.** (3:3:0)

622. History of French Language. (3:3:0)

626. French Phonology. (2:2:2) Prerequisite: French 326 or consent of instructor. Recommended for teachers.

629. Stylistics. (3:3:0)

654R. Studies in French Civilization. (3:3:0 ea.) Prerequisite: French 445 or consent of instructor.

660R. Studies in Medieval French Literature. (3:3:0)

665R. Studies in Renaissance French Literature. (3:3:0)

670R. Studies in Seventeenth-Century French Literature. (3:3:0)

675R. Studies in Eighteenth-Century French Literature. (3:3:0)

677. Principles of Foreign Language Learning and Teaching. (2:2:0 ea.) Prerequisite. French 377 or consent of instructor.

680R. Studies in Nineteenth-Century Romantic and Post-Romantic Movements. (3:3:0)

685R. Studies in Twentieth-Century Pre- and Post-World War II Movements. (3:3:0)

690R. Directed Readings. (1-3:Arr.:0 ea.)

692R. Seminar in Philology. (1-2:1-2:0 ea.)

697R. Seminar in Teaching of French. (2:2:0)

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

795R. Seminar in French Literature. (3:3:0)

799. Dissertation for the Ph.D. Degree. (1-6:Arr.:0)

Italian

The Italian Language is an indispensable tool for prospective students in music (voice), art, history, European studies, and comparative literature. Italian is also important to the student who wishes to experience the life and the unique culture of Italy.

Prerequisite Training. Students desiring a major or minor in Italian may be required to take all, some, or none of the prerequisite language courses (101, 102, 201, 211, 311), depending on their previous experience with the Italian language. This experience may be from high school courses, foreign residence (mission, Summer in Italy, etc.), or from a variety of other sources. The department offers placement examinations and counseling services to help students determine which courses may be necessary as prerequisite language training. All of the prerequisite courses will usually be waived for students returning from an Italian-speaking mission.

Italian Major. A major in Italian requires at least 26 hours of credit from upper-division courses beyond 201, which must include the following: Italian 301, 321, 322, 326, 440, 445. The remaining hours are to be taken from the advanced courses in literature: 460, 465, 470, or 485. No D credit will be accepted as part of the 26-hour major requirement.

Italian Minor. A minor requires 17 hours of credit from upper-division courses which must include Italian 301, 311, 321, 326, and 440. The remaining hours are to be chosen from 445, 460, 465, 470, and 485.

Minors Recommended for Italian Majors

All Italian majors have the choice of working under Option I or Option II.

Option I. Complete a minor as described by the minor department. Minors may be selected to fit the individual needs of the student upon consultation with the Italian major adviser. Recommended areas include a second modern foreign language, Latin, Greek, English, European studies, comparative literature, humanities, social studies, business, or one of the fine arts.

Option II. Majors in Italian need not have a formal minor but must complete at least 14 hours from among the following related fields: a second modern foreign language, (upper-division courses only), Latin, Greek, English (excluding 100-level courses), linguistics, classical civilizations, European history or geography, humanities, archaeology, comparative literature, or other areas approved by the Italian major adviser.

Strongly recommended additional courses for students of Italian are: Engl. 251, Fundamentals of Literature, or 351, The Criticism and Appreciation of Literature; Hum. 310, Introduction to Comparative Literature; Ling. 324, Introduction to Linguistics (Traditional) or 325, Introduction to Linguistics (Modern); Hist. 312, The Renaissance: Age of Transition; and ArtDs. 406, Renaissance Art History.

Summer in Florence. Italian majors and minors who have not had residence experience in Italy are encouraged to participate in the annual University-sponsored Summer in Florence. This program, offered through the Art and Design Department, provides excellent opportunities for developing language proficiency and for becoming better acquainted with the history and art of Italy.

Courses

101, 102. First-Year Italian. (4:4:1 ea.) (m)
Special attention to accurate pronunciation for the benefit of music and art students for whom Italian has special interest and value. Grammar and graded reading.

201. Intermediate Italian Reading and Conversation. (4:4:0) (m) Prerequisite: Italian 102 or two years of high school Italian.
Reading, conversation, vocabulary building, and review of grammar.

211. Second-Year Conversation. (2:2:2) (m) Prerequisite: Italian 102 or consent of instructor. May be taken concurrently with 201.

301. Introduction to Italian Literature. (3:3:0) (G-HA m) Prerequisite: Italian 201 or consent of instructor.
Spartano
Complete works of Italian literature are read from various periods and genres.

311. Third-Year Conversation. (2:2:2) (m) Prerequisite: Italian 201 or consent of instructor. May be taken concurrently with 201.
Discussion in Italian of topics dealing with Italy.

321. Third-Year Grammar. (3:3:0) (m) Prerequisite: Italian 201 or equivalent. May be taken concurrently with 301. Boynton
Intensive review of grammar; vocabulary building.

322. Italian Composition. (2:2:0) (m) Prerequisite: Italian 201 or equivalent. Boynton
Exercises in Italian composition.

326. Italian Phonetics and Pronunciation. (2:2:2) (m) Prerequisite: Italian 321 or consent of instructor. Boynton
History of the Italian language, with emphasis on pronunciation.

440. Survey of Italian Literature. (4:4:0) (G-HA m) Prerequisite: Italian 301 or consent of instructor. Spartano
A historical survey of Italy's literary periods, genres, and great writers. This course is prerequisite to study in all other advanced literature courses in Italian.

445. Introduction to Italian Civilization. (3:3:0) (G-HA m) Prerequisite: Italian 301 or consent of instructor. Boynton, Spartano
Study of the institutions, culture, and fine arts that have produced the unique Italian character.

460. The Age of Dante. (3:3:0) (G-HA m) Prerequisite: Italian 440 or consent of instructor. Spartano

465. Italian Literature of the Renaissance. (3:3:0) (G-HA m) Prerequisite: Italian 440 or consent of instructor. Spartano

470. Italian Literature of the Romantic Period. (3:3:0) (G-HA m) Prerequisite: Italian 440 or consent of instructor. Spartano

485. Italian Literature of the Twentieth Century. (3:3:0) (G-HA m) Prerequisite: Italian 440 or consent of instructor. Spartano

490R. Individual Study in Italian. (1-3:Arr.:Arr. ea.) Spartano
Assignments are made to fit the individual needs of the advanced student. Not to be taken in lieu of classes.

Germanic Languages

Professors: Davis (Chairman, 326 MCKB), Folsom, Kelling, Rogers, Smith, Speidel, Watkins.
Associate Professors: Baker, Harris, Roos, C. Tate.
Assistant Professors: Keele, Luckau, Luthy, Sondrup, G. Tate, Wilson.
Instructor: Johansson.

The Department of Germanic Languages offers instruction in the following languages:

Dutch
German
Scandinavian (Danish, Norwegian, Swedish, and Finnish)

Half-Year in Salzburg. German majors and minors who have not had residence experience in the German-speaking countries are encouraged to participate in the annual University-sponsored half-year in Salzburg, Austria. This program provides excellent opportunities for developing language proficiency and for becoming better acquainted with the history and cultural achievements of Europe.

Department of Germanic Languages

Credit by Examination. In accordance with University policy, a student may apply for credit for any course offered within the department if the student has gained the equivalent knowledge and has had the equivalent experience elsewhere, provided the student has received no college credit for this knowledge and experience. Applications for credit of this type will be evaluated by intensive examinations.

Former missionaries and other students with extensive language and cultural experience who desire to apply for several hours of credit must demonstrate the validity of their application in the following manner: (1) by successfully passing a written examination and (2) by successfully passing an advanced course in the language for which they are applying for credit. The advanced courses which are applicable are Danish: Scandinavian 441; Dutch: Dutch 340; Finnish: Scandinavian 447; German: German 401; Norwegian: Scandinavian 441; and Swedish: Scandinavian 445. Applications and information on examinations are available in the department office.

Degrees Offered

Dutch. No degree offered.
German. Bachelor of Arts, Master of Arts, Doctor of Philosophy; Major and Minor.
Scandinavian. Bachelor of Arts, Master of Arts; Minor.

Dutch

Course

340. Introduction to Dutch Literature. (4:4:0) (G-HA m) Prerequisite: reading knowledge of Dutch. C. Tate
Readings from the best Dutch literature. An introduction to basic literary concepts.

German

Prerequisite Training. Students desiring a major or minor in German may be required to take all, some, or none of the prerequisite language courses (101, 102, 201, 211, 301, 311, depending on their previous experience with the German language. This experience may be from high school courses, foreign residence (mission, Salzburg program, etc.), or from a variety of other sources. The department offers placement examinations and counseling service to help students determine which courses may be necessary as prerequisite language training. All of the above prerequisite courses will usually be waived for students returning from a German-speaking mission. **Students with no foreign residency must take 211 and 311 as part of their prerequisite training for a German major or minor.**

German Major. German 321, 322, and an additional 20 hours of upper-division German beyond 322. Applicants for graduate teaching assistantships must complete German 377 in addition. No D credit will be accepted as part of the major requirement.

German Minor. German 321, 401, 440, and one additional class above 321.

Teaching Majors and Minors. See German in the Department of Education listings.

Minors Recommended for German Majors

Option I. Complete a minor as described by the minor department. (Minors will be required of all those who seek teaching certificates and must be chosen from those areas approved by the TCO.) Minors may be selected to fit the individual needs of the student, but recommended areas include a second modern foreign language, Latin, Greek, English, European studies, comparative literature, humanities, social sciences, business, or one of the fine arts.

Option II. Majors in the department who are not seeking teaching certificates need not have a formal minor but must complete at least 14 hours from among the following related fields: a second modern foreign language (upper-division courses only), Latin, Greek, English (excluding 100-level courses), linguistics, classical civilization, German history, European geography, humanities, comparative literature, or other areas approved by the major adviser. It is recommended that these hours be chosen from more than one field.

Courses

95R. Beginning German for Graduate Students. (0:5:0 ea.) Evening classes only.

101, 102. First-Year German. (4:4:4 ea.) (m)
Designed for those who have not had German. Pronunciation, reading, fundamentals of grammar with special emphasis on conversation.

201. Second-Year German. (4:4:1) Home Study also. (m) Prerequisite: German 102, three units of German in high school, or consent of instructor.
Reading, review of grammar, conversation, vocabulary building.

211. Second-Year Conversation. (2:2:1) (m)

301. Intermediate German Reading. (3:3:0) Home Study also. (m) Prerequisite: German 201 or equivalent.
Extensive readings and introduction to basic literary concepts.

311. Third-Year Conversation. (2:2:1) (m)

321. Third-Year Grammar and Composition. (3:3:0) Home Study also. (m) Prerequisite: sixteen hours of college German or equivalent.
Intensive review of grammar; written and oral reports.

322. German Stylistics and Introduction to Literary Analysis. (3:3:0) Home Study also. (G-HA m) Prerequisite: German 321.

326. German Phonetics and Pronunciation. (2:2:0) (m) Prerequisite: German 301.

327. Beginning Translating and Interpreting. (3:3:1) (m) Prerequisites: 321, 322.

341R. (German-Hum.) Masterpieces of German Literature in Translation. (3:3:0) (G-HA)
Topic varies each semester. Three hours applicable to German major if works are read in German. Course not applicable to minor.

377. German Language Teaching Procedures. (3:3:2) Prerequisites: German 321, 326, 401; Ed. 301 for anyone certifying. (Prospective teachers should take German 377 after as many upper-division German courses as possible and just before student teaching or graduate teaching.) Luckau
Mastery of teaching skills specific to foreign language instruction. Lectures, demonstrations, participation in instruction, and preparation of teaching materials. Does not count toward hours for German major or minor.

401. Cultural History of German-Speaking Peoples. (3:3:0) (G-HA m)

423. German News Reports. (3:3:0) (m) Prerequisite: German 321 or equivalent.
Current news items from East and West will be analyzed and serve as the basis for grammatical and stylistic exercises.

429. The Structure of German. (3:3:0) Prerequisite: German 322. Folsom

440. Survey of German Literature and Culture. (4:4:0) (G-HA m) Prerequisite: German 301 or equivalent. For minors only.

441. German Literature from the Beginning to 1700. (3:3:0) (G-HA m) Prerequisite: German 301 or equivalent. Roos, Watkins

442. German Literature in the Eighteenth Century. (3:3:0) Home Study also. (G-HA m) Prerequisite: German 301 or equivalent. Davis, Kelling, Rogers

443. German Literature in the Nineteenth Century. (3:3:0) (G-HA m) Prerequisite: German 301 or equivalent. Baker, Davis, Speidel

444. German Literature in the Twentieth Century. (3:3:0) (G-HA m) Prerequisite: German 301 or equivalent. Keele, Kelling, Smith

479. Secondary Student Teaching. (4-8:0:20-40) Prerequisites: Ed. 301; German 321, 377. Jarvis, Luckau

490R. Special Studies in German. (1-3:Arr.:Arr. ea.) By special permission only.

495R. Senior Seminar for Majors. (3:3:0) Prerequisite: at least 6 hours of German literature (excluding 301).

520. Advanced German Composition and Grammar. (2:2:0) Prerequisite: German 321 or consent of instructor.
Exercises in vocabulary, grammar, and composition for high school and junior college teachers.

601. Bibliography and Research Techniques. (1:1:0)

620. History of the German Language. (3:3:0) Folsom, Watkins

622. Gothic and Comparative Germanic Linguistics. (3:3:0) Folsom, Watkins

626. German Phonology. (3:3:0) Prerequisite: German 326 or consent of instructor. Folsom

628. Middle High German I, II. (3:3:0 ea.) Folsom, Watkins

641. German Poetry. (3:3:0) Prerequisites: German 601 and 650 or consent of instructor.

642. German Drama. (3:3:0) Prerequisites: German 601 and 650 or consent of instructor.

643. The German Novel to 1945. (3:3:0) Prerequisites: German 601 and 650 or consent of instructor.

644. The German Novelle. (3:3:0) Prerequisites: German 601 and 650 or consent of instructor.

650. Literary Criticism. (3:3:0) Baker, Kelling, Speidel

677. Principles of Foreign Language Learning and Teaching. (2:2:0) For experienced teachers only. Luckau, Jarvis, Taylor, Jensen

689. Contemporary German Literature. (3:3:0) (m) Prerequisite: consent of instructor. Keele, Kelling, Smith

690R. Special Studies in German. (1-3:Arr.:Arr. ea.) By special permission only.

692R. Seminar in Philology. (3:3:0 ea.)

694R. Seminar in Literature. (3:3:0 ea.)

697R. Seminar in the Teaching of German. (2:2:0 ea.) Jensen, Jarvis, Luckau, Taylor

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

799. Dissertation for the Ph.D. Degree. (Arr.)

Scandinavian

Scandinavian Studies Minor

Undergraduate Minor: 13 hours of Scandinavian courses as follows: 401, one course from 441-447, and an additional 6 hours from 490R, 529, or 594R. Scandinavian 344R may not be counted toward the minor, but if the topic interests a student seeking the minor the student may benefit from the lectures and discussions by auditing 344R and arranging to do the reading in the original language under 490R.

Courses

101, 102. First-Year Norwegian. (4:4:2 ea.) Designed for those who have had no Norwegian.

107, 108. First-Year Finnish. (4:4:4 ea.)
A course providing the understanding of the basic system and vocabulary of the language. Emphasis on meeting student's individual communication needs.

201. Intermediate Norwegian Reading and Conversation. (4:4:1) Prerequisite: Scandinavian 102 or consent of instructor.

344R. (Scand.-Hum.) Masterpieces of Scandinavian Literature. (3:3:0) Harris, Sondrup, G. Tate
Topic varies each semester. Works may be read in English translation. Course not applicable to minor, but see note under Scandinavian Studies Minor.

401. Cultural History of Scandinavia. (Scand.-Hum.) (3:3:0) Sondrup
A consideration of Scandinavian cultural history from the Vikings to the present.

441. Dano-Norwegian Literature. (4:4:0) Prerequisite: reading knowledge of Danish or Norwegian. Harris
Readings from the best Danish and Norwegian literature. An introduction to basic literary concepts.

445. Swedish Literature. (4:4:0) Prerequisite: reading knowledge of Swedish. Johannson, Sondrup

447. Finnish Literature. (4:4:0) Prerequisite: reading knowledge of Finnish. Wilson
Readings from the best Finnish literature. An introduction to basic literary concepts.

490R. Individual Study in Scandinavian. (1-3:Arr.:Arr. ea.) Harris, Sondrup, G. Tate, Wilson

529. Old Norse. (4:4:0) (Scand.-Hum.) Prerequisite: knowledge of a modern Scandinavian language helpful but not required. G. Tate
May be applied toward an undergraduate minor but especially suited to the graduate minor or to supplementation of programs in German or English philology.

594R. Seminar in Scandinavian Studies. (3:3:0) (Scand.-Hum.) Prerequisite: consent of instructor. Harris, Sondrup, G. Tate, Wilson
Topic to be announced.

Spanish and Portuguese

Professors: Anderson, Compton, de Jong (emeritus), Dowdle, Gibson (Chairman, 303 MCKB), Moon.
Associate Professors: Lyon, Quackenbush, Rosen, Shreeve, Taylor.
Assistant Professors: Ashworth, Brown, Clegg, Dennis, Hall, Jackson.
Instructors: Jensen, Pomeroy, Valentine.
Special Instructors: McMaster, Vigo.

Degrees Offered

The Department of Spanish and Portuguese offers the Bachelor of Arts and Master of Arts degrees in Portuguese and Spanish, and the Doctor of Philosophy degree in Spanish. For graduate-degree requirements, see the **Graduate School Catalog.**

Foreign Residence Programs

The Department cosponsors summer residence programs in Mexico and half-year programs in Spain. Spanish majors and minors who have not had foreign residence experience are encouraged to participate in these programs: they provide excellent opportunities for development of language proficiency.

Prospective Graduate Students

Prospective graduate students are reminded that a second, and sometimes a third, language will be required of them in graduate school. It is advisable that work in at least one other language be started before the junior year.

Minor Recommended for Spanish or Portuguese Majors

(All teaching majors are required to work under Option I. Nonteaching majors will have a choice of Option I or Option II.)

Option I. Complete a minor as described by the minor department. (Minors will be required of all those who seek teaching certificates and must be chosen from those areas approved by the TCO.) Minors may be selected to fit the individual needs of the student, but recommended areas include a second modern foreign language, Latin, Greek, English, Latin American studies, European studies, comparative literature, humanities, social studies, business or one of the fine arts.

Option II. Majors in the department who are not seeking teaching certificates need not have a formal minor, but must complete at least 14 hours from among the following related fields: a second modern foreign language (upper-division courses only), Latin, Greek, English (excluding General Education courses), linguistics, classical civilization, Latin American history or geography, Spanish history and geography, humanities, archaeology, comparative literature, or other areas approved by the major adviser.

Portuguese

A major in Portuguese requires at least 24 hours of credit from upper-division courses beyond the second year, which must include the following: Portuguese 321, 322, 441, 451. The remaining hours are to be taken from advanced Portuguese classes or Ling. 325. Portuguese-speaking missionaries may not use 311 as part of the 24 hours.

No D credit will be accepted as part of the 24-hour major requirement.

The requirement for a departmental minor is 12 hours of credit from upper-division courses, which must include Portuguese 321, and at least two of the following: Portuguese 441, 445, 451, 455.

Courses

101, 102. First-Year Portuguese. (4:4:1 ea.) (m)
A beginning course. Pronunciation, conversation, reading, and fundamentals of grammar. Special attention to Portuguese as the language of Brazil.

201. Intermediate Portuguese Reading and Conversation. (4:4:0) Home Study also. (m) Prerequisite: Portuguese 102 or three units of high school Portuguese.

211. Second-Year Conversation. (2:2:Arr.) Prerequisite: Portuguese 102 or consent of instructor.

301. Intermediate Conversation, Reading, and Writing. (4:5:0) Home Study also. (m) Prerequisite: Portuguese 201.
Extensive readings in intermediate edited texts, and controlled composition.

311. Third-Year Conversation. (2:2:Arr.) Prerequisite: Portuguese 301 or consent of instructor.

321, 322. Third-Year Grammar and Composition. (3:3:0 ea.) Prerequisites: Portuguese 301; 16 hours of Portuguese or the equivalent. (Those returning from Portuguese-speaking missions normally begin their Portuguese study with 321.) Dennis, Jensen

326. Portuguese Phonetics and Pronunciation. (2:2:2) Prerequisite: Portuguese 301 or equivalent, or consent of instructor. Dennis, Jensen

441. Survey of Portuguese Literature. (4:4:0) (G-HA m) Prerequisite: Portuguese 301 or consent of instructor. Dennis

A historical survey of the literary periods, literary genres, and great writers of Portugal.

445. Iberian Culture. (2:2:0) (G-HA) Prerequisite: Portuguese 301 or equivalent. Dennis, Gibson

451. Survey of Brazilian Literature. (4:4:0) (G-HA m) Prerequisite: Portuguese 301 or equivalent. Jensen

A historical survey of the literature of Brazil.

455. Ibero-American Civilization. (2:2:0) Dennis, Gibson

490R. Individual Study in Portuguese. (1-3:Arr.:Arr. ea.) Dennis, Jensen

521. Romance Philology (3:3:0) Clark, Clegg

522. History of the Portuguese Language. (2:2:0) Gibson, Jensen

552. Machado de Assis. (2:2:0) Prerequisites: Portuguese 441, 451, or equivalent. Dennis

553. O Modernismo. (2:2:0) Prerequisites: Portuguese 441, 451, or equivalent. Dennis, Jensen

The modern movement in Brazilian literature (1920-1945).

620R. Portuguese Composition. (3:3:0 ea.) Jensen

642. Contemporary Portuguese Literature. (3:3:0) Jensen

650. Brazilian Literature. (3:3:0) Jensen

651. Contemporary Brazilian Literature. (3:3:0) Jensen

690R. Directed Readings. (1-2:0:Arr.)

692. Seminar in Philology. (2:2:0)

694R. Seminar in Literature. (2:2:0 ea.)

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

Spanish

A major in Spanish requires at least 24 hours of credit from upper-division courses beyond the second year, which must include Spanish 321, 322 or 439, 441, 451. The additional 10 hours are to be taken from other advanced Spanish offerings beyond 322 or Ling. 325. Spanish 439 is highly recommended for those who wish to specialize in literature. Spanish 322 is recommended for those who wish to emphasize the study of languages. Spanish-speaking missionaries may not use 311 as part of the 24-hour requirement.

No D credit will be accepted as part of the 24-hour major requirement.

The requirement for a departmental minor is 12 hours of upper-division courses beyond the second year, including Spanish 321, 441 or 451, 445 or 455. (For the requirements for a teaching major or minor see the Education Department section of this catalog.)

Spanish 326 and 377 are required for a graduate teaching assistantship.

Courses

95R. Beginning Spanish for Graduate Students. (0:5:0 ea.)

Evening classes only.

101, 102. First-Year Spanish. (4:4:4 ea.) (m)

An audio-lingual approach emphasizing pattern practice and common grammatical structures.

201. Intermediate Spanish Reading and Conversation. (4:4:1) Home Study also. (m) Prerequisite: Spanish 102 or three units of high school Spanish, or consent of instructor.

211. Second-Year Conversation. (2:2:Arr.) Prerequisite: Spanish 102 or consent of instructor.

301. Introduction to Spanish Literature. (4:5:0) Home Study also. (G-HA m) Prerequisite: Spanish 201 or equivalent.

311. Third-Year Conversation. (2:2:1) Prerequisite: Spanish 301 or consent of instructor. (Returned missionaries are not permitted to register for this course.)

321, 322. Third-Year Grammar and Composition. (3:3:0 ea.) Home Study also. (m) Prerequisite: Spanish 301 or equivalent. (Those returning from Spanish-speaking missions normally begin their Spanish study with 321.)

326. Spanish Phonetics and Pronunciation. (2:2:2) (m) Clegg, Dowdle, Hall

345R. Contemporary Culture. (3:1:3) (G-HA) Prerequisite: Spanish 102 or equivalent.

Contemporary Spanish (or Spanish-American) culture through a study of the people and their customs and institutions, as experienced abroad.

377. Spanish Language Teaching Procedures. (3:3:2) Prerequisites: Spanish 321, 326, 445; Ed. 301 for anyone certifying. (Not to be counted toward the Spanish major or minor requirement. Prospective teachers should take Spanish 377 after as many upper-division Spanish courses as possible and just before student teaching.) Jackson, Pomeroy, Taylor

Mastery of teaching skills specific to foreign language instruction. Lectures, demonstrations, participation in instructional activities in actual classroom situations.

425. Structure of the Spanish Language. (3:3:0) Prerequisite: Spanish 322. Clegg

439. Elements of Literary Analysis. (3:3:0) (G-HA) Prerequisite: Spanish 321. Ashworth, Lyon, Moon

441. Survey of Spanish Literature. (4:4:0) Home Study also. (G-HA m) Prerequisite: Spanish 301 or consent of instructor. This course is a prerequisite to all Spanish peninsular literature classes. Ashworth, Dowdle, Hall, Rosen

445. Iberian Civilization. (2:2:0) (G-HA m) Prerequisite: Spanish 301 or consent of instructor. Gibson, Hall, Rosen

451. Survey of Hispanic-American Literature. (4:4:0) (G-HA) Home Study also. Prerequisite: Spanish 301 or consent of instructor. This course is a prerequisite to all other Spanish-American literature courses. Brown, Compton, Lyon, Quackenbush

454. Hispanic-American Novel. (3:3:0) (G-HA) Prerequisite: Spanish 451 or consent of instructor. Brown, Compton, Quackenbush

455. Ibero-American Culture. (2:2:0) (G-HA) Compton, Gibson, Lyon, Rosen, Quackenbush

458. Hispanic-American Short Story. (3:3:0) (G-HA) Prerequisite: Spanish 451 or consent of instructor. Brown, Compton, Lyon, Quackenbush

An introduction to the short story and its development as an important literary genre in Spanish America, with principal authors.

470R. Golden Age Literature. (3:3:0 ea.) (G-HA) Prerequisite: Spanish 441 or consent of instructor. Dowdle, Rosen

479. Secondary Student Teaching. (4-8:0:20-40) Prerequisites: Ed. 301; Spanish 301, 377. Jackson, Pomeroy, Taylor

485. Introduction to Contemporary Spanish Literature. (3:3:0) (G-HA) Prerequisite: Spanish 441 or consent of instructor. Ashworth, Moon

490R. Individual Study in Spanish. (1-3:Arr.:Arr. ea.)
Assignments are made to fit the individual needs of the advanced student. By permission only.

520. Advanced Spanish Composition and Grammar. (2:2:0) Anderson, Clegg

521. Romance Philology. (3:3:0) Clark, Clegg

522. History of the Spanish Language. (2:2:0) Clegg, Dowdle, Gibson

523. Border Spanish. (3:3:0) Prerequisite: Span. 321 or consent of instructor. Clegg
An introduction to Mexican-American speech patterns and their impact upon the Spanish-speaking American subculture.

553. Spanish-Speaking American (Chicano) Literature. (3:3:0) Prerequisite: Span. 321 or consent of instructor. Lyon
A survey course of Spanish-English literature of the Mexican-American and other Spanish minorities within the United States.

556. Hispanic-American Poetry. (2:2:0) Compton, Lyon, Quackenbush

580R. Nineteenth-Century Spanish Literature. (3:3:0 ea.) Prerequisite: Spanish 441 or consent of instructor. Ashworth, Dowdle

584. Generation of '98. (3:3:0) Ashworth, Moon

601. Bibliography and Research Techniques. (2:2:0) Rosen, Taylor

615. Teaching Spanish Grammar. (2:2:0) Prerequisites: Ling. 325 and Spanish 326 or consent of instructor. Anderson, Clegg

626. Spanish Phonology. (2:2:0) Prerequisite: Spanish 326 or consent of instructor. Anderson, Clegg

645. Advanced Studies in Hispanic Culture. (2:2:0) Gibson, Rosen, Shreeve, Taylor

653. Latin American Drama. (2:2:0) (m) Quackenbush

654R. The Spanish-American Novel. (2:2:0) Compton, Lyon, Quackenbush

656. Modernista Prose and Poetry. (2:2:0) Compton, Lyon, Quackenbush

657. Hispanic-American Essay. (2:2:0) Lyon

658. Hispanic-American Short Story. (2:2:0) Compton, Quackenbush

660. Spanish Medieval Literature. (2:2:0) Dowdle, Gibson

670R. Golden Age Literature. (3:3:0 ea.) Dowdle, Rosen

677. Principles of Foreign Language Learning and Teaching. (2:2:0) Jackson, Taylor

685R. Twentieth-Century Literature. (2:2:0 ea.) Ashworth, Moon

690R. Directed Readings. (1-2:Arr.:Arr. ea.) Prerequisite: consent of instructor.

692R. Seminar in Philology. (2:2:0 ea.)

694R. Seminar in Spanish Literature. (2:2:0 ea.)

697R. Seminar in Spanish Teaching. (2:2:0 ea.) Anderson, Jackson, Rosen, Taylor

699. Thesis for Master's Degree. (6:Arr.:Arr.)

794R. Seminar in Literature. (2:2:0 ea.)

799. Dissertation for the Ph.D. Degree. (Arr.)

Latin American Studies

Professors: Addy (History), Blair (Linguistics), Compton (Spanish), Corbridge (Agricultural Economics), Gibson (Spanish and Portuguese), Layton (Geography), McKee (CDFR), Warner (History).

Associate Professors: De Hoyos (Sociology), Dutton (Economics), Fairbanks (Communications), Lyon (Spanish), Madsen (TESL), Shreeve (Coordinator, Latin American Studies, 172 FB), Spencer (Sociology), Taylor (Language Research Center), Tullis (Political Science), Webb (Education).

Assistant Professors: Chandler (History), Clegg (Coordinator, Spanish-Speaking American Studies, 240 MCKB), Dennis (Portuguese), Fletcher (Law Enforcement), Quackenbush (Spanish), Santiago (Continuing Education) Skinner (Youth Leadership).

Instructors: Grover (Library Science), Hawkins (Anthropology and Archaeology), Larson (Food Science and Nutrition).

Two programs are offered in Latin American Studies. One centers on Mexico and the countries of Central and South America and leads to a Bachelor of Arts degree in Latin American Studies (LAS). The other program focuses on Spanish-speaking Americans within the United States and leads to a Bachelor of Arts degree in Spanish-Speaking American Studies (SSAS). The Latin American Center also offers a Master of Arts degree in Latin American Studies and concurrent minors for major work in other departments.

These programs are designed to meet the needs of Latin and Anglo Americans interested in professions dealing with Spanish-speaking Americans or Latin Americans and offer valuable exposure to the Latin culture and its problems for those more casually interested in broadening their understanding of their Spanish-speaking or Latin American neighbors.

Spanish-speaking Americans are the second largest minority group in America. There is an ever-increasing demand for teachers, sociologists, researchers, lawyers, medical personnel, businessmen, journalists, government workers, and ordinary good neighbors who are qualified to deal with problems relating to Spanish-speaking Americans. At the same time, institutions and agencies working in countries south of the United States are recognizing more and more that skill in the language and appreciation for the culture and problems of the people are often a greater asset than specific job skills. Thus, many employers are seeking to hire good people with degrees in Latin American Studies.

The Spanish-speaking American Studies and Latin American Studies programs are designed to give the student both a rich background in the language, culture, and conditions of the Latin Americans and Spanish-speaking Americans and specific, useful job training. Both degrees require a minor or group of courses in another department to train the student in a specific area of interest. Suggested areas are: business, sociology, social work, psychology, law enforcement, education, communications, nursing, agricultural economics, youth leadership, recreation, history, political science, international relations, industrial education, and TESL.

Students may enter either the Latin American Studies or the Spanish-Speaking American Studies program with the approval of the Latin American Studies coordinator. Those desiring a minor should also consult with the coordinator, before registration, regarding classes to be included. Familiarity with Spanish or Portuguese is not necessary before entering a program.

Study Abroad

The University currently offers excellent opportunities for study in Spain and Latin America. These programs are especially advantageous to the student of Latin American Studies or Spanish-Speaking American Studies. They provide an opportunity for on-the-scene study in the Spanish language, history, geography, political science, sociology, and various other related fields. The courses offered in these programs help fulfill degree requirements. All students, especially those who have had no previous overseas experience, are strongly encouraged to participate in one or more of these programs.

Note: The Latin American Studies and Spanish-Speaking American Studies programs are purposely designed with a great deal of flexibility to allow the student maximum freedom in programming a course for his specific needs and interests. To insure a coordinated program, well suited to individual objectives, students are asked to counsel with the coordinator in planning all classes.

Requirements for Majors in Latin American Studies

1. Proficiency in either the Spanish or the Portuguese language (depending on the area of concentration) adequate for oral comprehension and speaking ability and research in the student's specialized field. Such proficiency will be determined by examination or by the successful completion of Spanish 321 or Portuguese 321 with a grade of B or better.

2. Minor, or group of supporting courses of 20 semester hours, in one of the departments of the University. Courses are to be selected in consultation with the coordinator of Latin American Studies and an adviser from the minor or supporting department. The minor or group of supporting courses can be in any field.

3. A total of 31 hours completed in courses dealing with Latin America. No D credit may be counted toward this requirement. The following courses must be included:

Geography
455 (3) Latin America
History
352 (3) History of Latin America II (required of all majors)
and
457 (3) The Indian in Latin American History
or
459 (3) Inter-American Relations
Latin American Studies
495 (3) Senior Seminar
Languages
455 (2) Ibero-American Culture
and
451 (4) Survey of Brazilian Literature
or
451 (4) Survey of Hispanic American Literature
Political Science
One of the following classes, as approved by the area coordinator:
352R (3) Third-World Government and Politics
375 (3) International Organizations
378R (3) International Systems
Sociology
320 (3) Social Organization
or
330 (3) Theory of Social Change Modernization
or
390R (1-3) Special Topics in Sociology (course will be designed to meet the needs of Latin American Studies students.)
Electives (7)

A list of acceptable elective courses is available in the Latin American Center.

Requirements for a Minor in Latin American Studies

1. The same proficiency in Spanish or Portuguese as required for the major.

2. A total of 15 hours in courses dealing with Latin American Studies from the list of approved courses (available in Latin American Center). At least 10 of the 15 hours are to be taken from the core courses outlined for the Latin American Studies major.

Master's Degree

A master's degree is offered in Latin American Studies. A B.A. in either Latin American Studies or Spanish-Speaking American Studies could lead to this master's program. For details and requirements of the master's degree, consult the **Graduate School Catalog.**

Requirements for Majors in Spanish-Speaking American Studies

1. Proficiency in the Spanish language adequate for oral comprehension and speaking ability and research in the student's specialized field. Such proficiency will be determined by examination or by the successful completion of Spanish 321 with a grade of B or better.

2. Minor, or group of supporting courses of 20 semester hours, in one of the departments of the University. Courses are to be selected in consultation with the coordinator of Spanish-Speaking American Studies and an adviser from the minor or supporting department. The minor or group of supporting courses can be in any field.

3. A total of 31 hours completed in courses dealing with Spanish-speaking Americans. No D credit may be counted toward this requirement. The following courses may be included:

Anthropology
317 (3) Native Peoples of North America
Health
460 (2) Drug Use and Abuse
History
460 (3) Spanish Colonial and Mexican Borderlands
Latin American Studies
495 (3) Senior Seminar
Geography
450 (3) North America
Political Science
319R (3 ea.) Topics in American Government (Minority-Group Politics)
Sociology
223 (3) Racial and Minority-Group Relations
Spanish
455 (2) Ibero-American Culture
and
523 (3) Border Spanish
and
553 (3) Spanish-Speaking American (Chicano) Literature
Electives (6)

Requirements for a Minor in Spanish-Speaking American Studies

1. The same proficiency in Spanish as required for the major.

2. A total of 15 hours in courses dealing with Spanish-Speaking American Studies from the list of approved courses (available in Latin American Center). At least 10 of the 15 hours are to be taken from the core courses outlined for the Spanish-Speaking American Studies major. Sociol. 223 and Pol. Sci. 319R must be included.

Courses

495. Senior Seminar in Latin American Studies. (3:3:0)
Sources, materials, and methods of research and writing, including critical analysis of a research project. Required for all Latin American Studies majors in the senior year. Also acceptable for the minor, with consent of the instructor.

690R. Interdisciplinary Seminar on Contemporary Latin American Problems. (1-3:3:0 ea.) Prerequisite: consent of instructor.

699. Research and Thesis for Master's Degree. (6:Arr.: Arr.) Prerequisite: approval of department chairman.

Law Enforcement and Justice Administration

Associate Professor: Paxman.
Assistant Professor: Fletcher (Coordinator, 255 MSRB).

Law enforcement and justice administration are broad terms that include a study of social and political response to criminal and other deviant behavior, of the role of government in preventing criminal behavior, and of detecting and rehabilitating the offender.

From infancy to death the entire population is directly affected by the administration of justice. At any stage in man's existence, life and property, peace and tranquility, and the continuity of government depend upon the protective services, the maintenance of order, and the equitable achievement of public decency, all of which are provided through the system of justice in this country.

Few fields offer the individual as many opportunities to be of genuine service to his fellowman as does justice administration. One of the most satisfying rewards of a career in justice administration is the knowledge that one is helping to make his community safer by safeguarding lives and property or by assisting in the rehabilitation of those who have become antisocial in their behavior.

The Law Enforcement and Justice Administration (LEJA) program provides instruction in the three major segments of our criminal justice system (i.e., law enforcement, courts, and corrections) and furnishes an educational focus upon the causes, environment, detection, and prevention of crime and the motivation, apprehension, and treatment of offenders.

The goals of the program are—

1. to provide specific prerequisites and appropriate background for students who intend to pursue graduate study and research in the field of justice administration, including law enforcement administration, court management, and correctional administration
2. to provide students with the background and skills necessary to qualify them for employment and leadership in the expanding field of justice administration, including federal, state, local, industrial-institutional, and private agencies of law enforcement and criminal justice
3. to provide instruction to students who wish to acquire an understanding of the processes of the administration of justice as a cultural part of their higher education and to assist in preparing them for valuable service in a wide variety of activities.

Degrees are offered at the associate, bachelor's, and master's degree levels.

Associate Degree

Those students desiring to pursue the associate degree should specifically enroll in the associate degree program in LEJA. The degree is earned upon the completion of the following two-year curriculum, approximately 50 percent of which are general education courses and 50 percent, specialized courses in LEJA and closely related subjects. The degree may be completed in less than two years if some of the courses are taken during the Spring or Summer terms. Although the degree is designed for those who do not have the time to complete the bachelor's degree, all the courses can be applied toward the bachelor's degree should the student wish to continue on toward the higher degree at a later time. No D credit will be accepted in any of the LEJA courses.

First Year	F	W
LEJA 101-1 or -91, 102	3	3
Pol. Sci. 110, 311	3	3
Sociol. 112	3	
Chem. 100 or Micro. 121		3
Engl. 111, 215	3	3
Health 130	2	
Hist. 170 or 121		3
Relig. 121, 122	2	2
Physical education	½	
	16½	17

Second Year	F	W
LEJA 301, 302	3	3
Health 430, Comms. 102	2	2
Geog. 211 or Physics 177 or Math 121		2-3
Psych. 111	3	
Econ. 110, Sociol. 111, Anthrop. 105, or Psych. 350	3	
Physics 100		3
Humanities, biological science	3	3
Religion	2	2
Physical education	½	
	16½	15-16

Bachelor's Degree

Bachelor-degree candidates majoring in LEJA are required to complete satisfactorily a minimum of 40 credit hours of courses indicated below. No D credit may be counted toward this total.

Required Courses (15 hours)

The following courses must all be taken: LEJA 101-1 or 101-91, 102, 301, 302, 304.

Elective Courses (5 hours)

A minimum of 5 credit hours must be taken from the following courses: LEJA 303, 305, 306, 307, 401, 500R, 501, and 502.

Required Supportive Courses (20 hours)

The following courses must all be taken, except that only one of the two psychology courses is required: Health 430; Pol. Sci. 300, 311, 330; Psych. 111 or 350; Sociol. 112, 381.

Elective Supportive Courses (15 hours)

A minor is not required for the LEJA major. In its place the student shall select in consultation with his adviser 15 credit hours from the following courses: Anthrop. 105; Geog. 211, 302; Health 460; Physics 177; Pol. Sci. 360, 361, 364, 368; Psych. 440; Sociol. 111, 380, 383, 389, 581, 682.

If the student elects to obtain a minor, it will be unnecessary to complete the 15 credit hours in supportive courses.

Master's Degree

The master's degree program is administered by the Institute of Government Service in cooperation with the Graduate School. The title of the degree is Master of Public Administration (MPA), and it includes law enforcement and justice administration as an area of specialization. For further details and requirements, see the Institute of Government Service section of the **Graduate School Catalog.**

Requirements for a Minor for LEJA Majors

Majors who wish to obtain a minor in lieu of the 15 hours in supportive courses may do so from any other department in the University. The number of credit hours needed and the courses required to complete a minor are determined by the department in which the minor is to be taken. The credit hours used in fulfilling the minor requirements cannot be counted twice with those used in fulfilling the major requirements. As an alternative to these minor requirements, students may select a concurrent major within one of the following departments: Political Science, Psychology, or Sociology. If this alternative is chosen, credit hours used to fulfill the requirements in the concurrent major may be counted twice with those used to fulfill the requirements for a major in LEJA. The courses selected to complete the minor requirements or the concurrent major requirements should be chosen in consultation with the adviser and with the chairman of the chosen minor or concurrent major department.

Requirements for a Minor in LEJA

For a student minoring in LEJA, 20 credit hours are required, chosen from the following courses in consultation with his adviser:

Required Courses:
LEJA 101-1 or 101-91, 102, 301, 302

Elective Courses:
LEJA 303, 304, 305, 306, 307, 401, 501, 502; Pol. Sci. 330, 361; Health 430, 460; Sociol. 381, 383.

General Education Requirement in English

In completing the general education requirement in English composition, bachelor-degree candidates majoring in LEJA are required to take Engl. 215.

Courses

101. Introduction to Law Enforcement. (3:3:0) Home Study also.
Philosophical and historical background; agencies of criminal justice; evaluation of law enforcement today.

102. Patrol Administration. (3:3:0) Home Study also. Prerequisite: LEJA 101.
Patrol methods; planning and supervision; basic police procedures.

301. Criminal Evidence. (3:3:0) Home Study also. Prerequisite: LEJA 101.
Evidence and proof; kinds, degrees, admissibility, competency, and weight; laws and rules of evidence.

302. Criminal Investigation. (3:3:0) Home Study also. Prerequisite: LEJA 101.
Investigative theory, objectives, and procedures, specific techniques for selected offenses; special problems in investigation.

303. Introduction to Industrial and Retail Security. (3:3:0) Home Study also. Prerequisite: LEJA 101.
Basic procedures for the administration of security protection in business and government.

304. Criminal Justice Procedure. (3:3:0) Prerequisite: LEJA 101.
Basic procedures in our adversary system of criminal justice; tracing a criminal case through the pre-trial, trial, and post-trial processes and beyond.

305. Administration of Juvenile Justice. (3:3:0) Prerequisites: LEJA 101; Sociol. 383 recommended.
Organization, functions, and jurisdiction of juvenile agencies; the processes from initial contact with police to selection of dispositional alternative; juvenile law and court procedures.

306. Criminalistics. (3:2:1) Prerequisites: LEJA 101, 102, 302; recommended: Chem. 100, Physics 100.
Techniques of scientific criminal detection, with emphasis on the value of special scientific aids to the investigator. Practice in collection of physical evidence.

307. Criminal Law. (3:3:0) Prerequisite: LEJA 101.
Nature, sources, and types of criminal law; classification and analysis by the law enforcement officer of crimes in general and of specific offenses.

401. Correctional Processes. (3:3:0) Prerequisite: LEJA 101.
History, philosophy, and methods of the correctional process including probation, correctional institutions, the treatment approach, parole and other release procedures, juvenile and private corrections.

500R. Field Study in Justice Administration. (Arr. ea.) Prerequisites: LEJA 101, 102, 301, 302, 304, and consent of coordinator.
Study and field experience through observation and participation in the processes of law enforcement and justice administration.

501. Special Problems in Criminal Law. (3:3:0) Prerequisite: LEJA 101, 301; recommended: Pol. Sci. 361.
Problems confronting law enforcement officers relating to the controls imposed by the current status of constitutional doctrine.

502. Law Enforcement Organization and Administration. (3:3:0) Prerequisites: LEJA 101, 301; Pol. Sci. 330.
Organization and management of line and staff operation; professionalization, ethics, and press and public relations.

Library and Information Sciences

Associate Professors: Johnson, Marchant, Thorne, Wright.
Assistant Professors: Lamson, Purdy.

The undergraduate library science program provides a minor for students wishing to become endorsed or certified for school libraries or instructional media centers. It meets Utah requirements for a minor in instructional media with library science emphasis.

A minor requires 16 hours of selected courses including LIS 513, 523, 539, 557, Ed. 406, and electives from the following: Ed. 340; Engl. 420; Hum. 101, 201, 202; Theatre 527. If Ed. 406 is taken to meet other requirements, an elective should be substituted. Electives should be appropriate to the area of specialization, e.g., Ed. 340 for elementary endorsement.

For official teacher endorsement requirements, see the Education section of this catalog.

Graduate Programs

The graduate programs offered by the Graduate Department of Library and Information Sciences provide professional training for the student wishing to obtain a Master of Library Science degree. Emphasis is upon a general preparation, but the large number of elective courses allows specialization in one of the following fields:

Information Science
Library Science
Library Systems Management
The School Library—Media Center

Additional requirements

There is a large range of skills useful to librarians, including such skills as foreign languages, instructional media, communications, computer programming, systems analysis, statistics, and English usage. Depending upon the student's objectives, up to 12 hours of skill courses may be required. No more than 6 hours of skill credit may be applied toward the degree.

Admission to the program is through the Graduate School. For detailed information regarding admission requirements, see the **Graduate School Catalog.**

Courses

111. How to Use the BYU Library. (1:2:0 for ½ term)
Efficient use of library materials; card catalog; use of general reference books (bibliographies, dictionaries, encyclopedias, and indexes); and making of bibliographies.

☐**Humanities 201. The Arts in Western Culture: Age of Greece to Early Renaissance.** (3:3:0)

☐**Humanities 202. The Arts in Western Culture: Late Renaissance to the Modern Age.** (3:3:0)

☐**Computer Science 231. Programming Techniques Using FORTRAN.** (3:3:2)

☐**Computer Science 233. Programming Commercial Applications in COBOL.** (3:3:2)

☐**Communications 335. Public Relations.** (3:3:0)

☐**Education 340. Children's Literature.** (2:2:0)

☐**Computer Science 351. Information Structure.** (3:3:1)

☐**Education 406. Introduction to Production and Utilization of Instructional Media.** (2:1:3)

☐**Education 509. Selection and Utilization of Instructional Media.** (2:2:0)

☐**English 420. Literature for Adolescents.** (2:2:0)

☐**Computer Science 451. Information Systems Analysis.** (3:3:2)

430. Organization and Processing of Material in the School Media Center. (3:3:0) Lamson, Shields
Principles, criteria, and practice in processing of book and nonbook materials. School media specialists seeking endorsement only.

501. Foundations of Library and Information Sciences. (4:4:0)
The basic principals and concepts underlying the cultural, intellectual, and historical foundations of library and information sciences.

☐**Statistics 501. Statistics for Research Workers I.** (5:4:3)

☐**Statistics 502. Statistics for Research Workers II.** (5:4:3)

513. Selection and Acquisition of Materials. (3:3:0) Purdy
Principles, criteria, and practice in evaluation, selection, and acquisition of book and nonbook materials. Required.

523. Reference Theory and Service. (3:3:0) Marchant, Purdy
Intensive study of basic reference materials and services, including general bibliographic tools and form. Required.

528. Organization and Processing of Materials. (4:4:0) Lamson, Wright
Theory and principle of the documentation of book and nonbook materials as expressed through classification and cataloging.

☐**Theatre 527. Narration.** (2:2:0)

534. Research in Library and Information Sciences. (2:2:0) Smith, Stirling
Bases, methods, and techniques of research. Experience in manipulating data. Statistical computer programs will be used and a research project completed under individual advisement.

536. Library Organization and Administration. (3:3:0) Prerequisite: LIS 501. Johnson, Marchant
Organization and administration of libraries. Organizational and administrative theory discussed. Problems associated with personnel, authority, policy, planning, reports, standards, etc.

538. Documentation and Information Retrieval. (3:3:0) Stirling
Survey of nonconventional and experimental methods and devices for cataloging, indexing, and retrieving; data processing and the library.

539. Practicum in Librarianship. (1:1:0) Prerequisites: completion of or concurrent registration in LIS 501, 513, 523, and 528. Thorne
Thirty hours of practice work under the supervision of a professional librarian. Required.

543. Literature of the Social Sciences. (2:2:0) Purdy, Wright
Analysis of subject concerns, methodology, and unique information needs of the various social science fields. Examination of literature resources and problems of bibliographic control.

545. Literature of the Humanities. (2:2:0) Purdy, Wright
Analysis of the subject concerns, methodology, and unique information needs of the various humanities fields. Examination of literature resources and problems of bibliographic control.

547. Literature of the Sciences. (2:2:0) Smith
Analysis of subject concerns, methodology, and unique information needs of the various fields of science. Examination of literature resources and problems of bibliographic control.

557. The Instructional Media Center in the School. (2:2:0) Prerequisite: LIS 536. Thorne
The place of the IMC in the educational program. Standards, management, equipment, budget, and services.

567. Library Services for the Young Adult. (2:2:0)
Critical study of reading interests and library needs of young adults.

☐**Psychology 570. Computer Use in Behavioral Sciences.** (3:3:6)

580R. Workshop: Current and Special Problems. (1-2:1-2 weeks:40-50 hrs. per week ea.)

590. Current Problems in Technical Services. (2:2:0) Lamson
Consideration of major problems in acquisitions, cataloging, classification, and conservation of materials.

596. Advanced Information Science. (3:3:0) Stirling
Formal methods of intellectual access to documents. Automatic content analysis. Classificatory, query strategy, relevance, and similar concepts and techniques.

☐**Education 610. Designing and Producing Instructional Materials.** (2:2:1)

☐**Education 611. Administering Instructional Media.** (2:2:0)

614. Literature of Mormonism. (2:2:0) Purdy

624. Government Publications. (2:2:0) Lamson

628. History and Theory of Manuscription. (2:2:0) Wright

☐**Education 628. Children's Literature.** (2:2:0)

632. History and Theory of Printing. (2:2:0) Wright

633. Advanced Library Administration. (3:3:0) Marchant

642. Seminar: Advanced Reference and Bibliography. (2:2:0) Purdy

645. Seminar: Classification Theory. (2:2:0) Lamson

656. Information Systems Analysis and Library Automation. (3:3:0) Stirling

662. Trends in Library Services for Children. (2:2:0) Prerequisite: Ed. 340. Thorne

664. Seminar: Philosophical Bases of Library and Information Sciences. (2:2:0) Wright

668. Seminar: Psycho-Sociological Bases of Library and Information Sciences. (2:2:0) Purdy

694R. Independent Research. (1-2:Arr.:0 ea.)

696R. Research Seminar. (2:2:0 ea.)

697. Project Seminar. (2:2:0) Johnson, Lamson

Linguistics

Professors: Blair, Cox (Chairman, 157-B FB).
Associate Professors: Lytle, Madsen.
Assistant Professor: Baird.
Instructors: Farnsworth, Gibb.

Linguistics Section

The linguistics program is a graduate program leading to the Master of Arts degree in theoretical or applied linguistics. It is designed to provide specialized training in linguistic science, with emphasis on either the description of linguistic structure (theoretical linguistics) or language teaching and learning problems (applied linguistics). For a description of the requirements for the M.A. in theoretical or applied linguistics, see the

Graduate School Catalog.

Although no baccalaureate degree in linguistics is currently offered, a broad range of related courses in English and foreign languages as well as in linguistics is available. For an undergraduate minor in linguistics, 14 hours of department-approved course work are required.

Courses

101, 102. First Year Navajo. (4:4:4 ea.) Blair
Designed for those who have had no Navajo. Daily development of the four basic language skills: comprehension, speaking, reading, and writing.

201. Navajo: Language and Culture. (3:3:0) (m) Prerequisites: Ling. 101, 102. Blair
A study of Navajo grammar and culture from a linguistic and anthropological point of view.

205. Introduction to Language. (3:3:0) (G-HA m) Baird
An introduction to the study of language in its nontechnical aspects.

301A,B,C,D,E; 302A,B,C,D,E. Audio-Lingual Study of an Uncommon Language. (4:4:2 ea.)
Different languages not commonly offered in University curricula will be taught on demand as Ling. 301: A—Oceanic; B—American Indian; C—East European; D—Asiatic; E—African. Only 302 will carry credit toward a major or minor in linguistics.

324. Introduction to Linguistics (Traditional). (3:3:0) Baird
History of language study, writing systems, phonetics, dialects, language history, and language acquisition.

325. Introduction to Linguistics (Modern). (3:3:0) Baird
Morphology, syntax, semantics, and phonology.

423. Language Learning. (3:3:0) Blair
A consideration of first- and second-language acquisition from the points of view of psycholinguistics and sociolinguistics.

426. Junction Grammar. (3:3:0) Prerequisite: Ling. 325. Baird
An introduction to Lytle's theory of semanto-syntactic structure.

481R. Problems in Translation. (2:2:0) (m) Prerequisites: consent of instructor and proficiency in a second language. Lytle
History, theory, and practice of human and machine translation.

501R. General Linguistics. (3:3:0) Blair, Lytle
Topics in general linguistics; models and methodologies.

525. Descriptive Phonology. (3:3:0) Baird
The structural description of the sound systems of language.

526. Generative Phonology. (3:3:0) Prerequisite: consent of instructor. Lytle
Techniques for analyzing phonological data and preparing phonological statements through ordered rules.

527. Descriptive Morphology. (3:3:0) Blair
The structural description of linguistic forms.

528. Syntax. (3:3:0) Prerequisite: Ling. 527. Lytle
Fundamental approach to generative grammar. Techniques of analysis of linguistic data and preparation of grammatical statements through ordered rules.

529R. Linguistic Structures. (3:3:1 ea.) Blair, Lytle
A consideration and comparison of the phonological and morphological structures of several non-Indo-European languages. Students work with native informants.

531. Sociolinguistics. (3:3:0) Prerequisite: consent of instructor. Blair
A survey of research and theory in anthropological linguistics and sociolinguistics.

590R. Readings in Linguistics. (1-3:Arr.:0) Blair
Individual study of current linguistic literature. Occasional discussion sessions with instructor and other class members. Pass and fail only.

623R. Problems in Contrastive Linguistics. (3:3:0) Blair

626. Problems in Historical Linguistics. (3:3:0) Lytle
Offered 1976 and alternate years.

693R. Seminar in Linguistics. (2:2:1) Blair

699. Thesis for Master's Degree. (1-6:Arr.:0)

English as a Second Language Section

While all undergraduate students at BYU are required to satisfy the University English composition requirements, additional courses are provided for nonnative speakers of English:

ESL 101—a remedial class providing an oral review of English fundamentals.
ESL 102—a course for writing improvement.
ESL 103—a small-group, tutorial course to improve spoken English (pronunciation and intonation) and listening.
ESL 104—a course to improve reading comprehension and reading speed.

These classes are open to both undergraduate and graduate bilingual students.

Placement in the above classes is determined by a BYU foreign-student test administered just prior to the beginning of each semester. Students who demonstrate sufficient mastery of the English language are placed in Engl. 111; all other foreign bilingual students are directed to the course or courses that will best meet their needs. Normally, 101 is a prerequisite for 102; however, 103 and 104 may be taken concurrently with either 101 or 102.

Master of Arts Degree and Graduate Certificate in Teaching English as a Second Language (TESL)

M.A. Candidates may choose from among four areas of emphasis: teaching, materials development, supervision-administration, or composite.

Graduate Certificate. The Certificate program (like the M.A. program with teaching emphasis) is designed to prepare teachers for both overseas and U.S. assignments. Type A Certificates include teacher certification; Type B Certificates do not.

Prerequisites: B.A. or B.S. degree and admission to Graduate School.
Application Consideration Dates: Same as Graduate School deadlines.
Requirements:
  35 semester hours (including thesis where applicable) for M.A.
  28 semester hours (including field study) for Certificate.
  20 semester hours for undergraduate minor.

Required Courses (M.A.)

Core courses: Engl. 529 or Ling. 528; TESL 527 (or Ling. 525), 528, 577, 578, 698 (ESL 201 required for most non-native speakers).

Teaching emphasis: core courses, TESL 579, 581, 583, culture course, and electives.

Materials development emphasis: core courses, minor, thesis, and electives.

Supervision-administration emphasis: core courses; minor; TESL 584, 697; and electives.

Composite emphasis: core courses; TESL 581, 583, culture course; minor; and electives.

Required Courses (Graduate Certificate)

TESL 527 (or Ling. 525), 528, 577, 578, 579, 583, 696; Ling. 325 (or Engl. 321 or 325), 528 (or Engl. 529); culture course.

The standard undergraduate professional courses for teacher certification are required for Certificate A. (ESL 201 is required for most nonnative speakers.)

Required Courses (Undergraduate Minor)

TESL 477, 527 (or Ling. 525), 528, 583 (or Engl. 251 or Hum. 310); Ling. 325 (or Engl. 321, 325, or 422), Ling. 528 (or Engl. 529); elective (ESL 201 is required for most nonnative speakers). TESL has been approved as a teaching minor.

Courses

101. English as a Second Language (Structure). (3:5:0) Madsen

For mastery of English sentence structure through oral and written exercises and controlled composition. For bilingual foreign students.

102. English as a Second Language (Writing). (3:3:2) Farnsworth

Transition from controlled to free writing, with an emphasis on expository prose. For bilingual foreign students.

103. English as a Second Language (Oral-Aural). (2:3:2) Farnsworth

To improve listening comprehension and speaking ability. Emphasis on fluency, correct pronunciation, and intonation. For bilingual foreign students.

104. English as a Second Language (Reading). (3:3:2) Madsen

Improvements in reading comprehension and reading speed. For bilingual foreign students.

201. ESL Advanced Composition and Oral Production. (3:3:2) (m) Prerequisites: Engl. 111 and subsequent composition course or equivalent. Cox, Farnsworth, Madsen

Composition, rhetoric, usage, mechanics plus developmental work in oral production.

477. TESL Methods and Materials Development. (4:4:1) (m) Prerequisite: Ed. 301. Cox, Farnsworth, Madsen

Instruction for TESL minors in basic teaching techniques, fundamental TESL methodology, materials selection and development.

527. Phonology of Modern English. (3:3:3) (m) Prerequisites: Engl. 321, or 325 or Ling. 325 or equivalent. Luthy

Articulatory phonetics (phonemics), intonation, and contrastive analysis of English sounds with those of other languages.

528. Phonology of Modern English—TESL Laboratory. (2:0:3) Farnsworth

Practical experience in developing eural discrimination and accent correction skills. Extensive work with bilinguals.

528. Phonology of Modern English—TESL Laboratory. (2:0:3) Farnsworth

Practical experience in developing eural discrimination and accent correction skills. Extensive work with bilinguals.

577. Procedures in Teaching English as a Second Language. (3:3:3) Prerequisite: Engl. 321 or 529 or Ling. 423. Cox, King, Madsen

Methods and materials used in teaching English as a second language; observation, discussion, and some teaching.

578. TESL Materials Selection and Development. (3:3:0) (m TESL) Cox, King, Madsen

For TESL students. Evaluation and adaptation of texts, creation of tests, tapes, exercises, games, supplementary aids and texts.

579. TESL Student Teaching. (4-8:0:4-8) Prerequisites: Engl. 577 and consent of instructor. Cox, Madsen

Teaching practice in a TESL setting. On-the-job training in planning instruction, preparing materials, and conducting actual classes.

581. TESL Testing. (2:2:0) (m) Cox, Madsen

Instruction in preparing and evaluating language tests and in carrying out fundamental statistical processes.

583. TESL Literature. (3:3:0) Prerequisite: Engl. 251 or equivalent. Cox, King, Madsen

Methods of teaching literature to non-native English speakers, both TEFL and TESL.

584. TESL Supervision-Administration. (2:2:0) Prerequisite: Engl. 577. Cox, Madsen

Presentation of ministerial language policies, teacher selection and preparation, program development and direction.

585R. Problems in Teaching English as a Second Language. (3:3:0) (m) Cox, King, Madsen

Instruction enabling prospective teachers to cope with ESL problems of linguistic and social convention.

696. TESL Field Study. (1-2:1-2:0) Prerequisite: completion of or concurrent registration in ESL 577 and 578, or consent of instructor. Cox, Madsen

697. TESL Supervision-Administration Internship. (4:0:approximately 25 per week for one-half semester) Prerequisites: Engl. 584 and the majority of coursework in TESL. Cox, King, Madsen

698. TESL Seminar. (2:2:0) Prerequisites: Completion of majority of ESL courses; consent of instructor. Cox, King, Madsen

Mathematics

Professors: Burton, Crawley, Fearnley, Gee, Gill, Hillam (Chairman, 290 TMCB), Jamison, Larsen, Moore, Peterson, Robinson, Snow, Yearout.

Associate Professors: Campbell, Garner, Hansen, Higgins, Olpin (emeritus), Skarda, Wickes, Wight.

Assistant Professors: Armstrong, Chatterley, Ferguson, Garbe, Haupt, Lamoreaux, Pope, Tolman, Walter, Wynn.

Instructor: Hurd.

The Mathematics Department offers courses leading to the following degrees: B.S. (in mathematics or in mathematics with various emphases), M.S. (in mathematics), B.A., and M.A. (in mathematics education).

In order to fulfill the mathematics, statistics, logic, and science requirement students majoring in mathematics must take at least one course listed as acceptable for this purpose outside of the Department of Mathematics.

Requirements for the B.S. Degree

An undergraduate student majoring in mathematics must present a program prepared in consultation with the Mathematics Department by the beginning of his junior year. He must complete this program with every grade a C or better. He must also pass a written comprehensive examination during the first semester of his senior year. Course requirements are Math. 141, 142, 243, 244, and one of the following options:

Mathematics

1. Math. 332, 371, 541, and either 372 or 542
2. A minimum of 15 additional hours selected from Math. 372, 387, 411, 434, 436, 451, 452, 501, 502, 508, 512, 542, 551, 552

Computational Mathematics

1. Math. 315 or 541, 321 or 434, and 411
2. Twelve hours selected from Math. 210, 323 or 436, 332, 371, 372, 387, 451, and any course numbered 500 or above
3. A minimum of 9 hours selected from Comput. Sci. 231, 232, 351; Elec. Eng. 220, 224; and Stat. 520, 521, 522, 541

Preprofesional Mathematics (for such professions as law, medicine, dentistry, and business)

1. Math. 315 or 541
2. One of the following: Math. 321 or 434 and 323 or 436; or two or more of the following: Math. 210, 371, 387, 508
3. A minimum of 12 additional hours selected from Math. 170, 210, 321 or 434, 323 or 436, 332, 371, 372, 387, 411, 451, 452, and any course numbered 500 or above
4. A minor, approved by the Mathematics Department, in an area relevant to the student's career interest or a minimum of 9 semester hours selected from Comput. Sci. 231, 232, 351; Elec. Eng. 220, 224; and Stat. 520, 521, 522, 541

Biomathematics

1, 2, and 3. Same as in Preprofessional Mathematics
4. A course of study, approved by the Mathematics Department, in biological science. Detailed suggestions may be obtained from the Mathematics Department office.

Physicomathematics

1. Math. 315 or 541, 321 or 434, 323 or 436, 411
2. Nine additional hours selected from Math. 332, 371, 372, 387, 451, 452, and any course numbered 500 or above
3. A course of study, approved by the Mathematics Department, in one of the physical or engineering sciences. Detailed suggestions are available from the Mathematics Department office.

Sociomathematics

1, 2, and 3. Same as in Preprofessional Mathematics
4. A course of study, approved by the Mathematics Department, in one of the social sciences. Detailed suggestions may be obtained from the Mathematics Department office.

A student with adequate background can complete the requirements for a B.S. in mathematics within a three-year period. One possible program is as follows:

First Year	F	W	Sp
Math. 141, 142, 243	4	4	3
Engl. 111	3		
Relig. 121, 122, and an elective	2	2	2
Health 130	2		
Phys. 121, 122	3	3	
Physical education	½	½	
Hist. 170		3	
Bot. 105		3	
Humanities			3
Elective	3	2	
	17½	17½	8

Second Year	F	W	Sp
Math. 244, 332, 451	3	3	3
Math. 371, 372, and an elective	3	3	3
Religion	2	2	2
Biological science	3		
Physical education	½	½	
Social science		3	
Engl. 316		3	
Electives	6	3	
	17½	17½	8

Third Year	F	W	Sp
Math. 541, 542	3	3	
Mathematics electives	3	6	3
Religion	2	2	
Statistics or computer science electives	3	3	
Social science	3		
Electives	3	3	5
	17	17	8

It may be possible to shorten the required time even further by using advanced placement credit or by attending Summer Term.

All students who contemplate pursuing graduate work in mathematics are urged to complete both Math. 372 and 542 and to gain competence in French, German, or Russian while an undergraduate.

Requirements for the Bachelor of Arts Degree in Mathematics Education

An undergraduate major who wishes to teach mathematics in secondary schools must present a program prepared in consultation with the Mathematics Department. He must complete his program with every grade C- or better. The following are required:

1. Math. 141, 142, 243, and 244 or the equivalent.
2. Math. 301, 302, 371, and 451.
3. A minimum of nine semester hours selected from the following: Math. 210, 300, 332, 372, 385, 387, 411, 434, 452, 501, 502, 512, 541, 542, 551, 552.
4. A teaching minor as described in the Education section of this catalog.

In order to obtain the Bachelor of Arts degree in mathematics education, a student must complete the teacher certification requirements outlined by the Education Department.

Undergraduate Minors

A student who wishes to minor in mathematics must complete with every grade C- or better—

1. either of the sequences Math. 141, 142, 243; or Math. 112, 113, 214; and
2. a minimum of 9 additional credit hours in courses selected from the following: Math. 244, 300, 315, 332, 371, 372, 387, 411, 434, 436, 451, 452, 501, 502, 508, 512, 541, 542, 551, 552, 585.

Beyond the scholarships from regular University sources, the John Einar Anderson Scholarship is available to mathematics majors. For information, contact Edah A. Shuttleworth, administrative assistant, 292 TMCB, or the office of the Department of Mathematics.

Graduate Degrees

The Department of Mathematics offers courses leading to the degrees of Master of Science in mathematics and Master of Arts in mathematics education. Complete details are available in the **Graduate School Catalog.**

Courses

90. Algebra. (0:3:0) Home Study also.
Equivalent to first year high school algebra.

91. Plane Geometry. (0:3:0) Home Study also.
Equivalent to high school plane geometry.

97. Mathematical Review. (0:2:0) Prerequisite: Math. 111.

Review of mathematics through calculus. Primarily for returning missionaries and others. Offered on the block plan.

101. Intermediate Algebra. (3:5:0) Home Study also. Prerequisites: Math. 90 and 91 or equivalent.

Equivalent to second year high school algebra.

105. College Algebra. (3:4:0) (G-ML) Home Study also. Prerequisite: Math. 101 or two years of high school algebra and one year of plane geometry.

Parallels part of Math. 111 at slower pace.

109. Introduction to Calculus. (4:4:1) (G-ML) Prerequisite: Math. 111.

Introduction to plane analytic geometry and one-dimensional calculus. Primarily for students in the colleges of Biological and Agricultural Sciences and Business.

110R. Precalculus Mathematics. (½-6:1-5:1-6) (G-ML) Prerequisite: Math. 101.

Topics in precalculus mathematics organized into twelve self-contained modules. Registration for appropriate modules should be by consultation and pretest.

112, 113. Analytic Geometry and Calculus I, II. (4:4:0 ea.) (G-ML) Home Study also. Prerequisite: Math. 111 or equivalent.

Plane analytic geometry; one-dimensional differential and integral calculus, with applications.

121, 122. Technical Mathematics. (3:2:3 ea.) (G-ML) Prerequisite: Math. 101.

College algebra, trigonometry, analytic geometry, and an introduction to calculus. Problems and applications. Primarily for students in industrial and technical education.

141, 142. Introduction to Calculus and Analysis. (4:4:0 ea.) (G-ML) Prerequisite: Math. 111 or equivalent.

Plane analytic geometry and one-dimensional calculus, with applications. Primarily for mathematics majors.

170. Introduction to Finite Mathematics. (3:3:0) (G-ML) Prerequisite: Math. 105 or equivalent.

210. Introduction to Mathematical Logic. (3:3:0) (G-ML) Prerequisite: Math. 105 or 111.

Traditional logic, Boolean algebra, algorithms, Turing machines.

211. Introduction to Numerical Methods. (2:2:0) (G-ML) Prerequisites: Comput. Sci. 131; Math. 109 or equivalent.

214. Analytic Geometry and Calculus III. (3:3:0) (G-ML) Home Study also. Prerequisite: Math. 113.

Multidimensional calculus, infinite series.

223. Technical Mathematics. (3:3:0) (G-ML) Prerequisite: Math. 122.

Analytic geometry and calculus. Primarily for Technical Institute students.

224. Numerical Methods in Technology. (3:3:0) (G-ML) Prerequisites: Math. 223 and Comput. Sci. 231.

Interpolation, approximation, numerical differentiation and integration, linear programming, solutions of equations. Primarily for students in industrial and technical education.

243, 244. Intermediate Calculus and Analysis. (3:3:0 ea.) (G-ML) Prerequisite: Math. 142 or consent of department.

Multidimensional calculus.

291R, 292R. Honors Seminar in Mathematics. (1:1:0 ea.) (G-ML)

Seminar in structure of mathematics. Primarily for freshman and sophomore mathematics majors. Open to other interested students.

300. History of Mathematics. (3:3:0) (G-ML) Home Study also. Prerequisite: Math. 112 or 301.

The development of mathematics, with emphasis on the underlying principles and motivations.

301. Foundations of Algebra. (3:3:0) (G-ML) Home Study also. Prerequisites: Math. 106, 111, or 305.

Sets; logic; basic number systems. Required of prospective secondary teachers.

302. Foundations of Geometry. (3:3:0) (G-ML) Prerequisite: Math. 112, 141, or 301.

The logical structure of Euclidean and non-Euclidean geometries. Required of prospective secondary teachers.

305. Basic Concepts of Mathematics. (3:3:0) (G-ML) Home Study also.

Designed to develop understanding of the basic structure of mathematics. Required of and restricted to prospective elementary teachers.

306. Concepts of Mathematics. (3:3:0) (G-ML) Home Study also. Prerequisite: Math. 305.

Modular arithmetic; real numbers; complex numbers; relations and functions; informal geometry. For elementary teachers.

307. Mathematics and the Humanities. (3:3:0) (G-ML)

Elementary ideas in contemporary mathematics for non-physical science majors. Credit may not be earned in both Math. 305 and 307.

315. Methods of Advanced Calculus. (3:3:0) (G-ML m) Prerequisite: Math. 214.

Topics from partial differentiation, multiple integration, infinite series, uniform convergence. Primarily for engineers and science majors.

321. Applied Ordinary Differential Equations. (3:3:0) (G-ML) Home Study also. Prerequisite: Math. 214.

Ordinary differential equations with applications; Fourier series; Laplace transforms. Primary for engineers and science majors.

322. Topics in Applied Mathematics. (3:3:0) (G-ML) Home Study also. Prerequisite: Math. 214.

Linear algebra, vector calculus, and Fourier analysis. For engineers and science majors.

323. Applied Partial Differential Equations. (3:3:0) (G-ML) Home Study also. Prerequisite: Math. 321.

Boundary value problems; transform methods; Fourier series; Bessel functions; Legendre polynomials. Primarily for engineers and science majors.

332. Introduction to Complex Analysis. (3:3:0) (G-ML) Prerequisite: Math. 214 or 244.

Complex algebra; analytic functions; integration in the complex plane; infinite series; theory of residues; conformal mapping.

371, 372. Abstract Algebra. (3:3:0 ea.) (G-ML) Prerequisites: Math. 142, 214, or 111 and 301.

Preliminary examination of algebraic systems: groups, rings, fields, vector spaces, linear transformations, matrices, etc.

385. Linear Algebra. (3:3:0) (G-ML) Prerequisite: Math. 111 or 301.

Vectors and matrices; linear equations; determinants; characteristic values; linear operators; quadratic forms; etc.

387. Theory of Numbers. (3:3:0) (G-ML) Prerequisite: Math. 111 or 301.

Foundations of number theory; congruences; residues; reciprocity law; Diophantine equations.

391R. 392R. Honors Seminar in Mathematics. (1 ea.:1 ea.:0) Prerequisite: membership in University Honors Program and a major in mathematics.

Topics from classical problems of antiquity, combinatorial mathematics, graph theory, real functions and numerical theory, and functional equations.

411. Numerical Methods. (3:3:0) (G-ML) Prerequisite: Math. 211 or equivalent.
Continued fractions, rational and economized approximations; ordinary differential equations, initial, boundary, and systems; Eigen values; nonlinear system of equations; Fourier and other orthogonal methods; multiple integrals; minimum methods.

434. Introduction to Ordinary Differential Equations. (3:3:0) (G-ML) Home Study also. Prerequisite: Math. 214 or 244.
Methods and theory of ordinary differential equations.

436. Introduction to Partial Differential Equations. (3:3:0) (G-ML) Prerequisite: Math. 321 or 434.
Methods for solving the wave, heat, and Laplace equations; eigenvalue problems and Fourier series.

451. Modern Geometry I. (3:3:0) (G-ML) Home Study also. Prerequisite: Math. 301 or 371.
Synthetic and analytic projective geometry; affine and Euclidean geometry. Geometry by invariants of groups of transformations.

452. Modern Geometry II. (3:3:0) (G-ML) Prerequisite: Math. 451.
Relationships of geometry to algebra, supplemental design, and combinatorial mathematics.

495R. Readings in Mathematics. (1-2:0:1-3 ea.) (G-ML) Prerequisite: consent of instructor.
Directed readings beyond the scope of usual undergraduate courses. Offered on demand.

501. Real Numbers. (3:3:0) Prerequisite: Math. 371; Recommended: Math. 451.
Extensive examination of various axiomatic descriptions of the real numbers and the interrelationships among these descriptions. Offered on demand.

502. Set Theory. (3:3:0) Prerequisite: Math. 371.
Zermelo-Fraenkel axioms for set theory; the axiom of choice; ordinal and cardinal numbers; algebra of sets. Offered on demand.

508. Mathematical Logic. (3:3:0) Prerequisite: Math. 371 or 541.
Propositional and first-order predicate calculi; set theories; well-ordering; transfinite induction.

512. Introduction to Numerical Analysis. (3:3:0) Prerequisite: Math. 411.
Theory of constructive methods in mathematical analysis.

513R. Advanced Topics in Applied Mathematics. (3:3:0 ea.) Prerequisite: consent of instructor.
Offered on demand.

541, 542. Introduction to Real Analysis. (3:3:0 ea.) Prerequisite: Math. 244 or 315.
A rigorous treatment of continuity, differentiability, integration of functions of real variables, and infinite series.

551, 552. Introduction to Topology. (3:3:0 ea.) Prerequisite: completion of or concurrent registration in Math. 541.
Axiomatic treatment of linearly ordered spaces, metric spaces, arcs, and Jordan curves; types of connectedness.

585. Matrix Analysis. (3:3:0) Prerequisite: Math. 322, 372, or 385.
Characteristic values, canonical forms, and functions of matrices, with applications.

629. Teaching Mathematics in Secondary Schools. (3:3:0)
Offered on demand.

631, 632. Complex Analysis. (3:3:0 ea.) Prerequisites: Math. 332, 542.
Offered on demand.

634, 635. Theory of Ordinary Differential Equations. (3:3:0 ea.) Prerequisites: Math. 434, 512.
Offered on demand.

641, 642. Functions of a Real Variable. (3:3:0 ea.) Prerequisite. Math. 542.
Offered on demand.

643R. Special Topics in Analysis. (3:3:0 ea.) Prerequisites. Math. 541, 542.

645. Tensor Analysis. (3:3:0) Prerequisite: Math. 244 or 542.
Offered on demand.

647, 648. Theory of Partial Differential Equations. (3:3:0 ea.) Prerequisites: Math. 436, 542.
Offered on demand.

651, 652. General Topology I, II. (3:3:0 ea.) Prerequisite: consent of instructor.

653R. Special Topics in Geometry. (3:3:0 ea.) Prerequisites: Math. 372, 452.

655R. Advanced Special Topics in Topology. (3:3:0 ea.) Prerequisite: consent of instructor.
Offered on demand.

661, 662. Functional Analysis. (3:3:0 ea.) Prerequisite: Math. 632 or 642.
Offered on demand.

671, 672. Modern Algebra. (3:3:0 ea.) Prerequisites: Math. 371, 372.

675R. Special Topics in Algebra. (3:3:0 ea.) Prerequisite: Math. 671.

681. Linear Algebra. (3:3:0) Prerequisites: Math. 371, 372.
Offered on demand.

695R. Readings in Mathematics. (1-2:1-2:0)
Offered on demand.

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

Mechanical Engineering

Professors: Anderson, Cannon, Free, Heaton, Polve, Simonsen (Chairman, 223B FELB), Ulrich, Warner, Wille.
Associate Professor: Paxson.
Assistant Professors: Chase, Woolley.

The Mechanical Engineering Science Department offers a professional engineering program at the bachelor's, master's and doctoral levels. The curriculum is fully accredited by the Engineers' Council for Professional Development (ECPD).

Mechanical engineers at BYU are trained to think, and to analyze and solve problems, in a creative fashion. This training is beneficial, not only in traditional engineering functions, but also in many other areas requiring creative thinking. BYU engineering graduates are significantly represented in top levels of management in industry and government. Others have found engineering to be an excellent background for law, medicine, dentistry, business management, and other professions.

The training program at BYU which leads to a degree in mechanical engineering is built upon a sound basis of mathematics, physics, and chemistry. The engineering classroom and laboratory course work is taught by a faculty with extensive academic and industrial experience. The technical program is supplemented by a well-balanced program of social sciences, religion, biological sciences and humanities. The professional nature of this training program enables the graduate to be immediately productive upon graduation as well as to keep up with new technological developments.

Since the industrial revolution, the mechanical engineer has been concerned with devising "engines" that develop power and "machines" which use the power to accomplish useful tasks. The design process involves a study of motion (kinematics) and the forces causing the motion (dynamics), both of which are implied by the word **mechanics**. All students are provided with a central core of engineering fundamentals and, by proper selection of elective courses, a student can increase his depth in such specialized areas as (1) aerospace, (2) automatic controls and systems analysis, (3) bioengineering, (4) fluid mechanics, (5) heat transfer, (6) manufacturing and industrial engineering, (7) materials and metallurgy, (8) mechanical design, (9) nuclear engineering, (10) solid mechanics, (11) thermodynamics, and (12) vibrations and dynamics. Each student is assigned an adviser, who works with him in developing his individual program. For example, a specialization in mechanical design would emphasize the analysis, design, development, fabrication, and application of products involving mechanisms.

Students who are inclined toward more routine technical work should consult the offerings of the Technology Department.

Recommended High School Preparation

Special recommendations for incoming engineering students are contained in the College of Engineering Sciences and Technology section of this catalog. A qualified student who has sufficient high school preparation can obtain the Bachelor of Science degree in three years under the new trimester calendar. Attending only two semesters per year requires the usual four years. However, the degrees offered by the department are awarded for competence level attained rather than for a fixed number of years' attendance. Therefore, students with insufficient high school preparation may require additional classes to complete the degree requirements, whereas those with more than adequate preparation can reduce the number of classes normally required.

The prerequisites to the engineering program are Des. Tech. 111 (Introduction to Engineering Graphics) and Math. 111 (College Algebra and Trigonometry) or their high school equivalents. Students will be given placement tests prior to registration to be excused from taking these classes. Students who have had sufficient preparation can also receive credit for Hist. 170 and Health 130—both required classes—by taking special examinations.

Degrees Offered

The Mechanical Engineering Sciences Department offers the Bachelor of Science (B.S.) degree, the Master of Engineering (M.E.) degree and the Master of Science (M.S.) degree. A Doctor of Philosophy (Ph.D) is offered in cooperation with all engineering departments.

The M.E. degree is the generally recommended path leading to a professional career in engineering practice. The B.S. program is designed as preparation for careers in such fields as law, medicine, sales work or other employment requiring less engineering training. The M.S. and Ph.D. are research programs for students who plan careers in research and development.

To increase flexibility in scheduling, a special program (M-3 program) is available in which a student may work on the B.S. and M.E. degrees simultaneously during the last three years (six semesters). The B.S. degree may be obtained simultaneously with, or prior to, the receipt of the M.E. degree. To enter the M-3 program the student must file an application and course outline for both B.S. and M.E. programs at the beginning of his junior year. After acceptance, a student may take courses for graduate credit. Prior to taking the last 30 hours of course work the student must apply to graduate school.

Grade Requirements

To receive a bachelor's degree in mechanical engineering science, a student must complete courses satisfying University general education requirements and departmental requirements with a cumulative grade-point average of at least 2.0 (C). A maximum of 9 hours of D credit may be applied toward fulfilling departmental requirements.

The graduate school requirement of a minimum 3.0 grade-point average applies to all graduate degree programs. A minimum GPA of 2.5 is required in the last 60 hours of course work for admission to the M-3 program.

Degree requirements

Requirements are listed below for both the M-3 program and the Bachelor of Science program. Engineering students are subject to all general education requirements, except that they are reqiured to take 4 semester hours of biological science instead of the usual 6.

Suggested sequences for the three-year B.S. program and for the four-year M-3 program are outlined by year. Failure to take courses in their proper sequence may delay graduation. **Flow charts showing required course sequences are available from the Mechanical Engineering Department office.** Students should also see their advisers for additional guidance in course planning.

Recommended course sequences for those attending only Fall and Winter semesters are also available in the Mechanical Engineering Department office.

M-3 program (B.S. and M.E. degrees) Four-Year Program

First Year	F	W	Sp
Mech. Eng. 101, 151	2	2	
Civ. Eng. 201			2
Des. Tech. 212		2	
Math. 112, 113, 214	4	4	3
Physics 121, 122	3	3	
Engl. 111	3		
Health 130*	2		
Hist. 170*		3	
General education elective			3
Relig. 121, 122	2	2	
Physical education	½	½	
	16½	16½	8

Second Year	F	W	Sp
Mech. Eng. 201		2	
Mech. Eng. 321, 363		3	2
Civ. Eng. 303, 304	3	3	
Chem. 105, 106	4	4	
Math. 321	3		
Stat. 332			2
Physics 214	1		
Physics 221	3		
Engl. 316		3	
General education elective			2
Religion	2	2	2
Physical education	½	½	
	16½	17½	8

Third Year	S	W	Sp
Mech. Eng. 412, 510	3½	3½	
Mech. Eng. 322, 540	4	3½	
Mech. Eng. 431, 454, 471	3	3	3
Mech. Eng. 351	3		
Math. 322		3	
General education electives	4	2	
Technical elective			3
Religion		2	
Elec. Eng. 301			2
	17½	17	8

Fourth Year	F	W	Sp
Math. 323	3		
Mech. Eng. 534, 698	3½	3	
Mech. Eng. 591R.	½		
Civ. Eng. 471	3		
Elec. Eng. 302, 304	2	2	
Elec. Eng. 303, 305	1	1	

Religion	1		1
Technical electives	3	6	6
General education electives		4	
	17	16	7

B.S. Degree Three-Year Program

First Year	F	W	Sp
Mech. Eng. 101, 151	2	2	
Civ. Eng. 201			2
Des. Tech. 212		2	
Math, 112, 113, 214	4	4	3
Physics 121, 122	3	3	
Engl. 111	3		
Health 130*	2		
Hist. 170*		3	
General education elective			3
Relig. 121, 122	2	2	
Physical education	½	½	
	16½	16½	8

Second Year	F	W	Sp
Mech. Eng. 201		2	
Mech. Eng. 321, 363		3	2
Civ. Eng. 303, 304	3	3	
Chem. 105, 106	4	4	
Math. 321	3		
Stat. 332			2
Physics 221	3		
Physics 214	1		
Engl. 316		3	
General education elective			2
Religion	2	2	2
Physical education	½	½	
	16½	17½	8

Third Year	F	W	Sp	Su
Mech. Eng. 412	3½			
Mech. Eng. 322	4			
Mech. Eng. 431, 454, 471	3	3	3	
Mech. Eng. 351	3			
Tech. electives		6½		4
Civ. Eng. 471		3		
Elec. Eng. 301 and 302 or 304		2	2	
Elec. Eng. 303 or 305			1	
General education electives	3	3		4
Religion	1	1	2	
	17½	18½	8	8

*Hist. 170 and Health 130 can be passed by examination.

Technical Electives

The student has a choice of three technical electives in the B.S. program and six technical electives in the M.E. program. Under the guidance of his adviser the student may choose technical electives to meet his particular educational goals. The technical electives may be chosen from the mechanical engineering courses or selected courses taught by other departments with the approval of the student's adviser. The student may select courses from several areas in mechanical engineering to obtain a broad background, or he may choose to align himself with one of the specialized options of mechanical engineering listed below.

Specialized Options

Aerospace. An aerospace engineer is concerned with the design of aircraft and spacecraft or the components that make up aerospace systems. Courses in airplane performance, stability and control, jet and rocket engines, automatic control systems, aerospace structures, fluid flow, heat transfer, celestial mechanics, and space physics provide background for work in aerospace engineering.

Students who wish to specialize in the aerospace option should take Mech. Eng. 515 for the bachelor's degree, Mech. Eng. 511, 515, and 584 for the master's degree, and additional electives chosen from Mech. Eng. 512, 531, 533, 535, 541, 542, and Physics 536 and 537.

Automatic Controls and Systems Analysis. Automatic control systems are essential elements in the manufacturing and processing industries and are extensively used in aerospace applications. The methods of modeling and computer simulation used in control system design may be generalized to a broader discipline called systems analysis, which is interdisciplinary in nature.

Students wishing to specialize in this area for the B.S. degree should take Mech. Eng. 531 and 534. Master's candidates should also take Mech. Eng. 637. Both may select electives from the following: Mech. Eng. 535, 572; Elec. Eng. 513; Math. 385, 411, 512, 585.

Bioengineering and Premedicine. Bioengineering combines the skills of the engineer with a knowledge and understanding of biological systems to obtain solutions of engineering problems associated with living systems. The necessary background in life science can be obtained by a careful selection of general education courses prerequisite to more advanced courses that can be used as technical electives. It is suggested that the biological science area of the general education requirements be filled with courses such as Zool. 202, 203, 261, 262; and Bot.-Micro.-Zool. 201. Technical electives may be selected from Zool. 460, 662; P.E. 341, 344, 645; Chem. 281, 284, 351, 352, 481, 484.

A premedicine option may be completed with approximately 18 hours of work beyond the B.S. degree by making a careful selection of general education and technical elective courses in consultation with the student's adviser.

Fluid Mechanics. A specialist in fluid mechanics analyzes the flow of fluids such as steam, water, petroleum, and air in and around bodies and pipes.

A student planning to specialize in fluid mechanics should take Mech. Eng. 510 and 540 and additional courses from the following: Mech. Eng. 511, 512, 521, 541, 542, 581, 584, 611, 641R; Chem. Eng. 672, 673, 674.

Heat Transfer. The study of heat transfer is useful in analyzing environmental temperature control, energy transfer for processes and energy conversion, and aerospace applications.

The specialized courses a student should take would be Mech. Eng. 510, 511, 512, 521, 541, 542, 581, 584, 611, 612, 641R; Chem. Eng. 672, 673, 674.

Manufacturing and Industrial Engineering. The areas of manufacturing and industrial engineering are related to the manufacture of products. An engineer working in these areas is required to make engineering decisions, to provide supervision to insure product reliability, function, economical fabrication, environmental and ecological suitability, and also to plan the proper application of manpower, materials, equipment, and processes.

A student may specialize in these areas by taking Mech. Eng. 552, 554, 555, 556, and selected courses chosen from Mech. Eng. 531; Bus. Mgt. 341, 461, 463; Mfg. Tech. 332, 338, 430, 431; Org. Behav. 321.

Materials and Metallurgy. A materials engineer must obtain maximum use and benefit from materials to produce the best products consistent with minimum cost and depletion of natural resources. The study of materials includes the fundamentals, control, and design of heat treating, welding, forming, and machining processes as well as the fundamentals of plastics, crystals, corrosion, etc.

A student may specialize in materials by taking Mech. Eng. 552 (or Civ. Eng. 501, 502), 554, 555, 556, and selected courses chosen from Civ. Eng. 507; Chem. Eng. 378; and Physics 581, 582.

Mechanical Design. A mechanical designer plans the detailed shapes of all the parts of a machine so that each part can be economically manufactured and fit together as required by the function of the machine, and so that the machine can be economically assembled and serviced. Good design makes a functional machine into a marketable product. A good designer needs to know material properties, manufacturing processes, and assembly techniques, as well as graphic presentation.

A student wishing to specialize in mechanical design should take Mech. Eng. 554 and 572 and should select additional electives from Mech. Eng. 533, 534, 537, 552, 555, and 556.

Nuclear Engineering. A nuclear engineer is primarily concerned with the design of nuclear reactors for power generation. With the addition of courses in nuclear reactor physics, the mechanical engineering curriculum provides the necessary background for work in nuclear engineering.

Undergraduate students may specialize in nuclear engineering by taking Chem. Eng. 582; Mech. Eng. 540; and a technical elective chosen from Chem. Eng. 583; Physics 555, 557; Mech. Eng. 510, 531, 534, 541, 542; and Math. 323. Students working toward a master's degree may obtain a minor in nuclear engineering by taking Chem. Eng. 582, 583; and Physics 555, 557. Additional electives from the above list and certain 600 level courses may be included to strengthen the program.

Solid Mechanics. Solid mechanics is a discipline employed in the design of machines and structures of all types. Students working in this field will be concerned with experimental and theoretical stress analysis of structures under static or vibrating loads.

Students planning to specialize in this area may select courses in the following subareas: static design of structures—Mech. Eng. 533, Civ. Eng. 527; dynamics of structures—Mech. Eng. 535, 637, Civ. Eng. 615; mechanics of materials—Mech. Eng. 552, Civ. Eng. 501, 502; experimental and theoretical stress analysis—Mech. Eng. 552, 661, Civ. Eng. 503.

Thermodynamics. The study of thermodynamics prepares the student for synthesis and analysis of energy processes such as internal combustion engines, steam power plants, propulsion systems, and energy conversion systems. The energy crisis will place a big demand upon the thermodynamicist to create energy systems that produce minimal pollution at minimal cost.

A student may specialize in thermodynamics by taking Mech. Eng. 521, 540 and additional courses from the following: Mech. Eng. 510, 511, 512, 541, 542, 581, 584, 611, 612, 641R; Chem. Eng. 672, 673, 674.

Vibrations and Dynamics. A specialist in vibrations and dynamics is concerned with the dynamic behavior of mechanical systems, especially with the effect of mechanical vibrations on the performance of machinery. A machine that is designed to withstand static loads may fail with the addition of dynamic loads.

To specialize in the study of dynamic phenomena, a student should take Mech. Eng. 535 and 637, with additional electives selected from Mech. Eng. 534, 537, 637; Civ. Eng. 615; Math. 332, 385, 411, 512, 585; Physics 561, 562, 621.

Courses

101. Introduction to Mechanical Engineering Systems. (2:1:3)
Introduction to the mechanical engineering profession through elementary design problems and basic computation techniques.

151. Introductory Metallurgy. (2:1:3)
Nature of metals; metallurgical examination and testing; phase diagrams; metal production and heat treatment; foundry processes; forming and welding processes; powder metallurgy; and associated laboratories.

201. Introduction to System Design. (2:1:3)
Synthesis and analysis of elementary engineering systems. The digital computer as a design tool. Emphasis on creative aspects of design through student projects.

291R. Undergraduate Seminar. (0:½:0)
Discussion of current topics.

301, 302. Elements of Thermoscience I, II. (3:3:0 ea.) Prerequisites: Mech. Eng. 301—Physics 122; Mech. Eng. 302—Mech. Eng. 301, Civ. Eng. 304, and Math. 321.
First and second laws of thermodynamics; fluid statics; incompressible and compressible fluid flow; heat transfer by conduction, convection, and radiation, with applications to electrical equipment.

321. Thermodynamics. (3:3:0) Prerequisites: Physics 122 and concurrent registration in Mech. Eng. 363.
A first course in fundamentals of classical thermodynamics for mechanical engineering majors. Emphasis is on the macroscopic approach. Covers cycles as well as an introduction to combustion.

322. Thermodynamics. (4:3:3) Prerequisite: Mech. Eng. 321.
Continuation of Mech. Eng. 321.

351. Principles of Applied Metallurgy. (3:2:3)
Control of physical properties by strain, solution and precipitation hardening, recrystallization, and multiphase alloying. Emphasis on quantitative properties predictions based upon microstructures.

363. Mechanical Engineering Instrumentation. (2:1:3) Prerequisites: Stat. 332; Physics 221; and concurrent registration in Mech. Eng. 321.
An introduction to theory and application of static and dynamic measurements, including displacement, acceleration, temperature, pressure, strain, high-speed photography, etc.

412. Fluid Mechanics I. (3½:3:2) Prerequisite: Math. 321.
A study of fluid statics, viscous flow; dimensional analysis; incompressible flow, compressible flow; fluid meters; lift and drag; dynamic similarity; momentum; potential theory; fluid machinery.

431. Kinematics. (3:2:3) Prerequisite: Civ. Eng. 304.
Relative motion of links in mechanisms; velocities and accelerations of machine parts; rolling contact; cams; gearing; synthesis of mechanisms. Includes computer-aided design techniques.

454. Analysis and Manufacture of Machine Components. (3:2:3) Prerequisites: Civ. Eng. 201 and 303.
Theory, design, and manufacture of machine components.

471. Mechanical Design I. (3:2:3) Prerequisites: Mech. Eng. 363, 412, 454.
Application of mechanical engineering theory to specific design problems, with emphasis on group projects. Philosophy of design.

☐**Civil Engineering Science 501. Advanced Mechanics of Materials.*** (3:3:0)

☐**Civil Engineering Science 502. Advanced Properties of Materials.*** (3:3:0)

510. Fluid Mechanics II. (3½:3:2) Prerequisites: Math. 321; Mech. Eng. 412.
Compressible flow; shock effects; Fanno and Rayleigh lines; generalized one-dimensional flow.

511. Intermediate Gas Dynamics. (3:3:0) Prerequisite: Mech. Eng. 510.
Potential theory and Euler's equations. Supersonic and subsonic multidimensional flow. Method of characteristics; small perturbation theory; Hodograph theory. Theoretical airfoil coefficients, etc.

512. Boundary Layer Theory. (3:3:0) Prerequisite: Mech. Eng. 412.
The stress tensor; Navier-Stokes equations; exact solutions for parallel flow; lubrication theory; Prandtl's equations; separation; Karman-Pohlhausen integral methods; applications.

515. Applied Aerodynamics and Flight Mechanics. (3:3:0) Prerequisite: Mech. Eng. 322.
An integrated picture of modern applied aerodynamics up to and including performance, stability, and control of aerospace vehicles.

521. Energy Resources and Conversion.* (3:3:0) Prerequisite: Mech. Eng. 322.
Survey of energy resources and design of systems for conversion of energy using the principles of thermodynamics.

531. Principles of Automatic Control.* (3:3:0) Prerequisites: Mech. Eng. 412, 534; Math. 321.
Transfer functions applied to mechanical, hydraulic, pneumatic, and electrical components and their combination. Block diagrams; Nyquist and Routh criteria. Bode's and root locus plots; integral and error rate compensation. Nonlinear systems.

533. Stress Analysis and Design of Mechanical Structures.* (3:3:0) Prerequisite: Civ. Eng. 303.
Methods of predicting stress and deflection; optimization of components; applications to vehicle and aerospace structure design; curved beams and rings; semimonocoque structures.

534. Dynamic System Analysis and Modeling. (3½:3:2) Prerequisites: Math. 321, Civ. Eng. 304.
Lumped models of mechanical, electrical-mechanical, fluid, and thermal systems; graphic models; physical system response; digital and analog simulation.

535. Advanced Vibration Analysis.* (3:3:0) Prerequisites: Math. 321, Civ. Eng. 304.
Vibrations of systems with multiple degrees of freedom; vibrations of elastic bodies; random vibrations; simple nonlinear systems.

537. Advanced Kinematics.* (3:3:0) Prerequisite: Mech. Eng. 431.
Geometry of constrained motion, with application to point paths; kinematic synthesis; types of mechanisms.

540. Heat Transfer. (3½:3:2) Prerequisites: Mech. Eng. 321, 412; Math. 321.
Fundamentals of heat transfer; basic laws; conduction; convection; change of phase; radiation.

541. Advanced Heat Transfer. (3:3:0) Prerequisite: Mech. Eng. 540.
Heat transfer analysis by numerical and analog methods. Emphasis on radiation and conduction. Use of digital and analog computers, passive analogs.

542. Design of Heat-Transfer Systems.* (3:3:0) Prerequisite: Mech. Eng. 540.
Design of heat-transfer devices and heat-exchange systems associated with environmental temperature control, electronic cooling and aerospace vehicles.

552. Design and Materials Applications. (3:3:0) Prerequisites: Mech. Eng. 351, 454.
Applied and residual stresses; materials selection; static, impact, and fatigue strength; fatigue damage; surface treatments; elastic deflection and stability—all as applied to mechanical design.

554. Advanced Manufacturing Processes. (3:3:0) Prerequisite: Mech. Eng. 351 or consent of instructor.
Basic analysis of forming, machining, welding, and casting processes, with emphasis on microstructures. Selection of process parameters, with consideration of economics and material properties.

555. Mechanical Forming Methods.* (3:3:0) (m) Prerequisite: consent of instructor.
A treatment of methods for calculating forces, velocities, and other physical parameters necessary to understand and design forming equipment such as extruders and rollers.

556. Advanced Physical Metallurgy.* (3:3:0) Prerequisites: Mfg. Tech. 335, Math. 223, or equivalent; or consent of instructor.
A continuation of Mfg. Tech. 335, including topics related to advanced material forming, molding, joining, and heat-treating processes.

572. Interdisciplinary Systems Design. (3:1:6) Prerequisite: Mech. Eng. 471.
Design projects, emphasizing group project attack on contemporary problems: Interdisciplinary faculty and student participants.

581. Internal Combustion Engines.* (3:2:3) Prerequisite: Mech. Eng. 322.
Basic principles of spark ignition and compression ignition engines; actual cycles; performance characteristics; carburetion and ignition principles; detonation and combustion. Laboratory work with three advanced engine testing cells.

584. Design of Fluid Machinery and Propulsion Engines. (3:3:0) Prerequisite: Mech. Eng. 412.
Design and synthesis of radial and axial flow machines, pumps, and rocket, ramjet, and turbojet engines; application of fluid flow and thermodynamic fundamentals.

591R. Seminar. (½:1:0 ea.) Prerequisite: senior standing.
Student and faculty presentation of topics of special and current interest.

593. Mechanical Engineering Practicum. (1-3:0:0) Prerequisite: minimum of 60 hours in mechanical engineering.
Technical elective credit given in recognition of at least two months of full-time, engineer-related, industrial experience. Planning document and formal report required.

595R. Special Topics in Mechanical Engineering. (Arr. ea.) Prerequisite: consent of department chairman.

611. Theories of Fluid Turbulence.* (3:3:0) Prerequisites: Mech. Eng. 412; Math. 322, 323.

612. Principles of Ideal-Fluid Dynamics.* (3:3:0) Prerequisites: Mech. Eng. 412; Math. 322, 323.

637. Dynamics in Mechanical System Design.* (3:3:0) Prerequisite: Mech. Eng. 531 or 534.

641R. Special Topics in Heat-Transfer Theory.* (3:3:0 ea.) Prerequisite: Mech. Eng. 540.

651. Advanced Topics in Manufacturing.* (3:3:0) Prerequisite: Mech. Eng. 554 or consent of instructor.

661. Selected Topics in Solid Mechanics.* (3:Arr.:Arr.) Prerequisites: Civ. Eng. 303, Math. 323.

695R. Special Problems for Masters Students. (1-3:Arr: Arr. ea.) Prerequisite: permission of department chairman.

697R. Research.* (Arr. ea.)

698. Project for Master of Engineering. (3-5:0:Arr.) Prerequisite: fifth-year standing in mechanical engineering program.

699R. Thesis for Master's Degree. (6-9:Arr.:Arr. ea.)

791R. Seminar for Doctoral Students. (1:1:0 ea.)

795R. Selected Topics in Mechanical Engineering. (1-3: Arr.:Arr.)

797R. Research for Doctoral Students. (Arr. ea.)

799. Dissertation for Doctoral Students. (Arr.)

*Electives offered on demand.

Microbiology

Professors: Beck, Bodily, Donaldson (Chairman, 775 WIDB), D. Larsen, North, R. Sagers, Wright.
Associate Professors: Bradshaw, Burton, Jensen.
Assistant Professor: Johnson.
Instructors: Allman, Anderson, H. Larsen, Watts.

Special Instructor: G. Sagers.
Collaborators: Bolick, Call.
Laboratory Superviser: Lee.

The Microbiology Department offers programs leading to the B.S., M.S., and Ph.D. degrees. Some fields of specialization are: food microbiology, immunology, industrial microbiology, medical microbiology, microbial ecology, microbial genetics, microbial physiology and virology. Graduates are employed in a wide variety of positions in industry, hospitals, government agencies, and universities. For details concerning programs for graduate study, students should consult the **Graduate School Catalog.** Four major areas of emphasis, each leading to a Bachelor of Science degree in microbiology, are listed below. No hours of D credit in microbiology will be acceptable for graduation.

Microbiology and Preprofessional

This emphasis is recommended for students who desire excellent preparation for graduate study in microbiology and for students who plan to attend medical, dental, or osteopathic schools. Minimum requirements: Bot.-Micro.-Zool. 201; Bot. 370; Math. 105, 106 (or 111), 109; Chem. 105, 106, 223, 351, 352, 353; Physics 201, 202; Micro. 331, 491R, 501, 511, and 531. Students who gain admission to an accredited professional school after completion of their junior year may substitute credit received in pathology and microbiology at the professional school for Micro. 511, 531, and 491R. The student can then, by transfer of credit, receive a B.S. degree, providing all general education requirements have been met.

Medical Technology (with internship)

Through a cooperative agreement with various hospitals, provision has been made for training medical technologists. The program leads to certification as a registered medical technologist by the American Association of Clinical Pathologists. The curriculum consists of six semesters of resident study on the Brigham Young University campus followed by twelve months of internship at an approved hospital. During the internship year, the student will register for Micro. 422 through 427 and pay tuition and fees to the University. Minimum requirements: Bot.-Micro.-Zool. 201; Bot. 370; Math. 105; Chem. 105, 106, 252, 223, 481; Physics 100; Zool. 261, 317; Micro. 101, 102, 331, 391, 491R, 501, 511, and completion of Micro. 422 through 427 during the hospital internship.

An internship integrated with the Provo and Salt Lake hospitals requires Physics 105, 106 in place of Physics 100; Chem. 351, 352 in place of Chem. 252; and Zool. 260.

Medical Technology and Laboratory Science

This program is for students in medical technology who elect to complete requirements for a B.S. degree prior to the hospital internship and for microbiology majors who plan to obtain employment at the Bachelor of Science level as biomedical technicians at laboratories in industry and in government agencies. Minimum requirements: Bot.-Micro.-Zool. 201; Math. 105; Chem. 105, 106, 223, 252, 481; Physics 100; Micro. 102, 331, 451, 491R, 501, 511, and 7 additional credit hours selected from Micro. 361, 381, 391, 411, 521, 522, 531 or 581. Students planning a hospital internship must include Bot. 370; Micro. 101, 391, 392; and Zool. 261 and 317 in their programs. Physics 201 and 202 and Chem. 351, 352, and 353 are strongly recommended as substitutes for Physics 100, Chem. 252, and Bot. 370.

Environmental Health Science

This program is designed to prepare students for employment in a variety of environmental-health-related positions in government agencies and private industry. Graduates are also well prepared to pursue graduate work in schools of public health. Minimum requirements: Bot.-Micro.-Zool. 201; Bot.-Zool. 250; Math. 105, 106 (or 111); Stat. 221; Chem. 105, 106, 252, 481; Physics 105, 106, 107, 108; Health 451; Sociol. 329; Zool. 317, 331; Civ. Eng. 550; Micro. 311, 331, 361, 381, 411, 491R, and 501. Recommended additional courses: Bot. 370, 372 (or Zool. 371); Geog. 101; Geol. 104; Health 551; Micro. 511, 531; Zool. 535.

Microbiology and Preprofessional—Recommended Three-Year Curriculum for B.S. Degree

First Year	Su	F	W	Sp
Math. 105, 106, 109	3	3	4	
Health 130	2			
Engl. 111	3			
Chem. 105, 106, 351		4	4	3
Bot.-Micro.-Zool. 201		4		
Physical education		½	½	
Religion		2	2	2
Humanities		3	3	
Hist. 170			3	
Chem. 352				3
	8	16½	16½	8

Second Year	F	W	Sp
Chem. 353	2		
Physics 201, 202	5	5	
Zool. 203	4		
Physical education	½		
Religion	2	2	
Social science	3	3	
Micro. 331, 501		5	5
Elective		2	3
	16½	17	8

Third Year	F	W	Sp
Chem. 223	5		
Micro. 511, 531	4	4	
Micro. 491R		1	
Bot. 370		2	
Religion	2	2	
Physical education			½
Electives	5	7	4
	16	16	4½

Medical Technology and Laboratory Science—Recommended Three-Year Curriculum for B.S. Degree

First Year	F	W	Sp
Math. 105, 106, 109	3	3	4
Chem. 105, 106	4	4	
Engl. 111	3		
Religion	2	2	2
Physical education	½	½	
Health 130	2		
Micro. 101	1		
Social science		3	
Bot.-Micro.-Zool. 201		4	
Humanities			3
	15½	16½	9

Second Year	F	W	Sp	Su
Social science	2			
Hist. 170	3			
Zool. 261	4			
Chem. 351	3			
Chem. 352, 353		5		
Religion	2	2		2
Physical education	½	½		
Micro. 331, 501, 511		5	5	4
Humanities			3	
Electives	2			2
Engl. 316		3		
	16½	15½	8	8

Third Year	F	W	Sp
Zool. 317	3		
Physics 201, 202	5	5	
Micro. 531, 391	4	3	
Micro. 491R			1

Chem. 223			5
Chem. 481, 484		6	
Religion	2		
Electives	2	2	2
	16	16	8

Medical Technology (with internship)—Minimum Requirements

First Year	F	W
Math. 105	3	
Chem. 105, 106	4	4
Engl. 111	3	
Hist. 170		3
Health 130		2
Social science	3	2
Bot.-Micro.-Zool. 201		4
Religion	2	2
Physical education	½	½
	15½	17½

Second Year	F	W
Micro. 331		5
Chem. 252	5	
Chem. 481		4
Physics 100	3	
Bot. 370	2	
Zool. 261		4
Humanities	3	
Religion	2	2
Physical education	½	½
	15½	15½

Third Year	F	W
Micro. 391		3
Micro. 491R		1
Micro. 501, 511	5	4
Engl. 316		3
Zool. 317	3	
Chem. 223	5	
Humanities		3
Religion	3	3
	16	17

Fourth Year (Hospital Internship)	F	W
Micro. 422, 423, 424	15	
Micro. 425, 426, 427		15
	15	15

Medical Technology (with integrated internship)—Minimum Requirements

First Year	F	W
Math. 105, 110 or 111	3	
Chem. 105, 106	4	4
Engl. 111	3	
Micro. 101	1	
Micro. 102	1	
Hist. 170		3
Health 130		2
Social science	3	2
Relig. 121, 122	2	2
Physical education	½	½
Micro. 201		4
	17½	17½

Second Year	F	W
Zool. 261	4	
Chem. 351, 352	3	3
Physics 105, 106; or 201, 202	3	3
English	3	
Micro. 331		5
Humanities		3
Religion	2	2
Physical education	½	½
	15½	16½

Third Year	F	W
Micro. 501, 511	5	4
Bot. 370	2	
Zool. 262	2	
Chem. 223	5	
Micro. 393		5
Micro. 394		3
Humanities		3
Religion	2	2
	16	17

Fourth Year	F	S	Sp
Micro. 420	5		
Micro. 421	3		
Chem. 481	4		
Zool. 317	3		
Religion	2		
Micro. 491R	1		
(Hospital Internship)			
Micro. 424, 425, 426		15	
Micro. 427, 491R			6
	18	15	6

Courses

101. Introduction to Medical Technology. (1:1:0)
Introduction to the field of medical technology through lectures, films, and observation at hospital laboratories.

102. Introduction to Medical Technology Laboratory. (1:0:3) Prerequisite: previous or concurrent registration in Micro. 101. Anderson
Introduction to hospital laboratory techniques.

121. Introductory Microbiology. (3:2:2) (G-BS) Recommended for students seeking a liberal education in microbiology who do not have the prerequisites to take the more advanced courses.
A survey of fundamental biological processes observed in microorganisms. Only one of the two courses 121, 321 may be taken for credit.

201. (Bot.-Micro.-Zool.) Introduction to Biology. (4:5:0) (G-BS) Prerequisites: Chem. 105; concurrent registration in Chem. 106.
Introduction to basic principles of biology. Offered for majors and minors in biology.

311. Sanitation and Public Health. (2:2:0) Home Study also. (G-BS m)
The role of the individual and the community in maintaining a healthful environment.

321. General Microbiology. (3:3:0) Home Study also. (G-BS m) Prerequisites: any chemistry course and any zoology or botany course. Not open to students who have completed Micro. 121.
Survey of the microbial world, with emphasis on disease-producing microorganisms.

322. General Microbiology Laboratory. (1:0:2) (G-BS m) Prerequisite: concurrent or previous registration in Micro. 321.

331. Microbiology. (5:3:6) (G-BS, ML m) Prerequisite: any organic chemistry course. Beck, Bradshaw, Burton, R. Sagers
The first microbiological course for students majoring or minoring in microbiology or medical technology and any other students desiring a comprehensive course in microbiology.

361. Food and Dairy Microbiology. (3:2:3) (G-BS m) Prerequisite: Micro. 121 or equivalent. Bodily

☐**Botany 370. Introduction to Genetics I.** (2:2:0)

☐**Zoology 371. Principles of Genetics II.** (2:2:1)

☐**Botany 372. Evolutionary Genetics** (2:2:0)

381. Water and Sewage Microbiology. (2:1:3) (G-BS m) Prerequisite: Micro. 121 or equivalent. Burton

391. Clinical Pathology. (2:1:3) (m) Prerequisite: Micro. 331.
Theory and application of diagnostic methods employed in hospital laboratories.

392. Clinical Pathology. (2:1:3) Prerequisite: Micro. 331. Dr. Larry Bolick and Utah Valley Colleagues
Theory and application of diagnostic methods employed in hospital laboratories.

393. Pathophysiology and Laboratory Diagnosis. (5:5:0) Prerequisite: Micro. 501 and previous or concurrent registration in Micro. 511. Anderson, H. Larsen, Watts
Medical laboratory techniques in hematology, blood banking, coagulation, and serology.

394. Pathophysiology and Laboratory Diagnosis (Laboratory). (3:0:10) Prerequisite: concurrent registration in Micro. 393. Anderson, H. Larsen, Watts
Medical laboratory techniques in hematology, blood banking, coagulation, and serology.

411. Epidemiology. (2:2:0) (G-BS) Prerequisite: Micro. 121 or equivalent. Wright

420. Pathophysiology and Laboratory Diagnosis. (5:5:0) Prerequisites: Chem. 351, 352, 481. Anderson, H. Larsen, Watts
Medical laboratory techniques in urinalysis, clinical chemistry, and clinical microbiology.

421. Pathophysiology and Laboratory Diagnosis (Laboratory). (3:0:10) Prerequisites: Chem. 351, 352, 481, or concurrent registration in Micro. 420. Anderson, H. Larsen, Watts
Medical laboratory techniques in urinalysis, clinical chemistry, and clinical microbiology.

422. Applied Clinical Diagnosis Laboratory. (5:3:10) (G-BS) Prerequisite: Micro. 511.
Hospital internship.

423. Applied Clinical Diagnosis Laboratory. (5:3:10) (G-BS) Prerequisite. Micro. 511.
Hospital internship.

424. Applied Clinical Diagnosis Laboratory. (5:3:10) (G-BS) Prerequisite. Micro. 511.
Hospital internship.

425. Applied Clinical Diagnosis Laboratory (5:3:10) (G-BS) Prerequisite. Micro. 511.
Hospital internship.

426. Applied Clinical Diagnosis Laboratory. (5:3:10) (G-BS) Prerequisite. Micro. 511.
Hospital internship.

427. Applied Clinical Diagnosis Laboratory. (5:3:10) (G-BS) Prerequisite. Micro. 511.
Hospital internship.

451. Bacterial Physiology. (3:3:0) (G-BS m) Prerequisites: Micro. 331 and Chem. 281 or equivalent. Beck, Bradshaw, R. Sagers

491R. Undergraduate Seminar. (1:1:0 ea.) (m) Prerequisite: Micro. 501.

495R. Special Problems. (Arr. ea.) (m)

501. Pathogenic Microbiology. (5:3:6) (m) Prerequisite: Micro. 331 or consent of instructor. D. Larsen, Wright

511. Immunology. (4:2:6) (m) Prerequisite: Micro. 501 or consent of instructor. Donaldson, Johnson

521. Industrial Microbiology. (2:2:0) (m) Prerequisites: Micro. 331 and biochemistry. Beck, D. Larsen

522. Industrial Microbiology Laboratory. (1:0:3) (m) Prerequisite: completion of or concurrent registration in Micro. 521.

531. Virology. (4:2:6) (m) Prerequisite: Micro. 501 or 511. Jensen, Johnson, North

551. Advanced Microbiology. (5:3:6) (m) Prerequisites: Chem. 481 and 484 or consent of instructor. Bradshaw, R. Sagers

581. History of Microbiology. (1:1:0) (m) Prerequisite: senior or graduate status. Beck, D. Larsen

601. Pathogenesis of Infectious Disease. (2:2:0) Prerequisites: Micro. 511 and consent of instructor. Wright

611. Advanced Immunology. (2:2:0) Prerequisite: Micro. 511. Donaldson

631. Advanced Virology. (2:2:0) Prerequisites: Micro. 531; Chem. 481 or equivalent. Jensen, North

632. Cell and Tissue Culture Techniques. (2:0:6) Prerequisites: Micro. 531; Chem. 481 or equivalent. Jensen, North

641. Radioactive Tracer Techniques in Biology. (3:1:6) (m) Prerequisites: Physics 202 and consent of instructor. Beck, Sagers

651R. Special Topics in Microbiology. (1-2:Arr.:Arr.) Prerequisite: Micro. 551. Flexible-title course.

661. Microbial Genetics. (4:3:3) Prerequisites: Micro. 331, a course in general genetics, and Chem. 481 or equivalent. Bradshaw

671. Clinical Correlation. (2:1:3) (m) Bolick

691R. Graduate Seminar. (1:1:0 ea.)

695R. Research (Arr. ea.)

699. Thesis for Master's Degree (Arr.)

799. Dissertation for the Ph.D. Degree. (Arr.)

Military Science (Army ROTC)

Professor: Colonel Day (Chairman, 320A ROTCB).
Assistant Professors: Lieutenant Colonel Jensen, Major Aldridge, Major Boyer, Captain Earnhart.
Tactical Instructors: Sergeant Major Rigby, Master Sergeant Loftus, Staff Sergeant Lowenstein, Specialist White.

General Information. The Army ROTC program is designed to attract, motivate, and prepare selected students to serve as commissioned officers in the Regular Army or the U.S. Army Reserve. The instructional program is designed to fit into the regular academic schedule of the University and is taught by highly qualified U.S. Army officers. It consists of military science and other academic classes, leadership laboratory, and off-campus summer camp training. The traditional program of Army ROTC extends over four years of college. A two year program is also offered. In addition to ROTC classes, all students attend a leadership laboratory once each week and wear the ROTC uniform on laboratory day.

The four-year program is divided into two phases—a two year basic course and a two-year advanced course. All academic work counts toward graduation requirements. The basic course is normally taken by the student during his freshman and sophomore years. The beginning student must be or intend to become a citizen of the United States.

Physical and academic standards for entry into the basic course are the same as those of the University. The purpose of the basic course is to introduce the student to general military subjects: military organization and missions, familiarization with basic weapons, military history, and the techniques of leadership and command. The student who wishes to enter the advanced course, normally taken during the junior and senior years, must pass a written and physical examination during the year preceding his entry into the advanced course and must sign an agreement to complete the last two years of Army ROTC, attend a six-week advanced ROTC summer camp, and serve a two-year tour of active duty with the U.S. Army upon graduation and commissioning, if needed. The student is sworn into the Army Enlisted Reserve at the beginning of the junior year and begins to receive $100 monthly subsistence allowance.

A student incurs no military obligation through participation in Army ROTC until he enters into a contract to complete the advanced course. Student veterans who have had one or more years of active military service may be granted placement credit for the basic course and may be selected for the advanced course. Students who have transferred from junior colleges and those who have not participated in the ROTC program during their first two years of college may enter the two-year ROTC program by taking a written and physical examination and attending a six-week basic summer camp. Upon successful completion of the basic summer camp, the student is eligible for the advanced course.

The advanced course, which leads to an officer's commission in either the U.S. Army Reserve or the Regular Army, includes: leadership and the exercise of command, military teaching methods, logistics, administration, and military justice. Practice in leadership and command experience is provided by cadet brigade officers and noncommissioned officers, who instruct basic course students during leadership laboratory periods under the supervision of U.S. Army instructors. The advanced ROTC summer camp at Fort Lewis, Washington, is normally attended between the student's junior and senior years. It may be deferred until after the senior year in special cases.

Period of Nonattendance. Students who are in a five-year academic program such as an engineering major may complete their Army ROTC courses at any point prior to their graduation. They are encouraged to participate in leadership laboratory work even when they are not enrolled for military science classroom courses. Out-of-phase students and those who will be student teaching should consult the professor of military science.

Minor in Military Science. Students desiring military science as a minor must complete the Army ROTC requirements (including 12 hours of upper-division military science course work and 2 to 6 additional hours approved by the professor of military science) and otherwise qualify for a U.S. Army commission. A major in military science is planned. Interested students should consult the department chairman.

Textbooks, Uniforms, and Allowances. All books and uniforms connected with the ROTC programs are furnished the student. In addition, students selected for the advanced course receive a monthly allowance during the school year and half the pay of a second lieutenant for the six-week advanced ROTC summer camp. For the two-year program student, the pay for the basic summer camp period is that of a private. All cadets receive travel pay of eight cents per mile to and from the army summer camp posts.

Army ROTC Scholarships. On a competitive basis, a financial aid program is available to especially qualified and motivated students. Tuition, books, laboratory fees, and a monthly allowance of $100 are provided. Scholarships are for one, two, three, or four years of college. Students receiving this additional financial support serve on active duty for four, rather than two, years.

Flight Instruction Program. Students who wish to become army aviators and who meet physical and mental requirements may apply for participation in a flight instruction program, which is conducted by a local accredited flying school, during the student's final year of ROTC. The army pays for the instruction, which includes 35 hours of ground school and more than 36 hours of flying instruction.

Extracurricular Activities. Each Army ROTC cadet will be able to extend his academic and laboratory associations into a variety of extracurricular ROTC activities. Among these are the Ranger Company, Drill Team, Army ROTC Chorus, Army ROTC Marching Band, annual Military Ball, and the many school service projects performed by the cadet brigade. Army band and chorus classes are listed under the Music Department, and each carries one hour of credit.

LDS Missions. A student who wishes to serve a two-year LDS mission can do so most conveniently between his freshman and sophomore years. This allows him to be on campus during the spring of his sophomore year to facilitate his selection for the advanced course. However, interruptions of the program at other times for a mission can be arranged by obtaining individual approval from the professor of military science.

Leadership Laboratory Course Fee. A course fee of $8 per semester, payable for the school year at the beginning of the Fall Semester, is required of each participating student. The purpose of this fee is to cover cadet activity expenses and other minor special costs not authorized for payment from U.S. government appropriations.

Students who earn commissions through ROTC are exempted from the general education requirement in physical education. Students who do not earn commissions but who successfully complete two years on campus in the ROTC Leadership Laboratory course or the basic ROTC summer camp as a substitute will receive a one-credit-hour exemption from the general education requirement in physical education.

Military Deferments. Students enrolled in the Army ROTC program may receive an immediate deferment from induction upon application.

Army Sponsor Corps. The Army Sponsor Corps is a campus service organization for women students. Members are usually selected for membership during the Fall Semester. They are required to register for a leadership laboratory course corresponding to their academic year in the University. They receive one-half credit hour per semester for the laboratory courses.

Program of Instruction. The ROTC program of instruction is designed to complement the student's civilian goal of acquiring a baccalaureate degree in a course of study of his choosing while enabling him to develop the knowledge, skills, and attitudes that will facilitate his transition into one of the army's fifteen branches upon commissioning. The program also enables the student who plans a civilian career to fulfill his military obligation to his country while serving as an officer. Following the completion of active service, ROTC graduates reflect their leadership training as leaders in business, civic, and community affairs. As a veteran, after two years of active duty, an officer is eligible for 36 months of financial support as a graduate student.

Sequence of Courses. The following is the normal sequence of Army ROTC classes. (Two-year program students follow the sequence shown for the junior and senior years. Selected courses may be offered during the Spring and Summer blocks if there is sufficient student demand. Consult the class schedule or the course instructor for details.)

Basic Course

Freshman	F	W
Mil Sci. 110, 111	½	½
Mil Sci. 120, 121	1	1
Sophomore	F	W
Mil. Sci. 210, 211	½	½
Mil. Sci. 220, 221	2	2

Advanced Course

Junior	F	W
Mil. Sci. 310, 311	½	½
Mil. Sci. 320, 321	2½	2½

Senior	F	W
Mil. Sci. 410, 411	½	½
Mil. Sci. 420, 421	2½	2½

Courses

110, 111. Leadership Laboratory—Freshman. (½:0:2 ea.)
Leadership, drill, and exercise of command; school of the soldier; dismounted drill and ceremonies.

120. Military Science I. (1:1:2)
History, organization, and mission of ROTC; basic firing techniques, evolution of warfare.

121. Military Science I. (1:1:2) Prerequisite: Mil. Sci. 120 or equivalent military experience.
Army organization from squad through division; role of supporting units; organization of the defense establishment.

131. Military Science I. (2:2:2)
An alternative single-semester course including course descriptions as listed for Mil. Sci. 120 and 121.

210, 211. Leadership Laboratory—Sophomore. (½:0:2 ea.) Prerequisite: Mil. Sci. 111 or equivalent military experience.
As listed for Mil. Sci. 110, emphasizing functions, duties, and responsibilities of squad leaders and platoon sergeants.

220. Military Science II. (2:2:2) Prerequisite: Mil. Sci. 121 or equivalent military experience.
American military history, with emphasis on leadership principles and techniques.

221. Military Science II. (2:2:2) Prerequisite: Mil. Sci. 220 or special permission.
Basic map reading; small unit tactics.

310, 311. Leadership Laboratory—Junior. (½:0:2 ea.) Prerequisite: Mil. Sci. 211 or equivalent military experience.
As listed for Mil. Sci. 110 with emphasis on tactical training of squad and platoon.

320. Military Science III. (2½:3:2) Prerequisite: Mil. Sci. 221 or equivalent military experience.
Objectives, principles, traits, and techniques of leadership; military methods of instruction; counterinsurgency operations; map reading.

321. Military Science III. (2½:3:2) Prerequisite: Mil. Sci. 320.
Tactics of small infantry units; communications; branches of the army; summer camp orientation.

410, 411. Leadership Laboratory—Senior. (½:0:2 ea.) Prerequisite: Mil. Sci. 311.
As listed for Mil. Sci. 110, stressing responsibilities in leadership and affording experience as cadet officers in conduct of formal drills and ceremonies.

420. Military Science IV. (2½:3:2) Prerequisite: Mil Sci. 321.
Army organization and functions—administrative management, logistics, and leadership.

421. Military Science IV. (2½:3:2) Prerequisite: Mil. Sci. 420.
Army organization and functions—military justice, defense development, role of the U.S. in world affairs.

Music

Professors: Bradshaw, Davis, Earl, Goodman (Chairman, C-550 HFAC), Halliday, H. Laycock, R. Laycock, Mason, Nibley, Nordgren, Sardoni, Williams, Woodward.
Associate Professors: Belnap, Cundick, Dalton, Gibbons, Keeler, Longhurst, Manookin, Randall, Stubbs.
Assistant Professors: Arbizu, Curtis, Dayley, Downs, Foxley, Harris, Kalt, Mathiesen, Pollei, Powley, Smith, Terry, Unsworth, Wakefield, Webb.
Instructors: Anderson, Bos (emeritus), McIntosh.

The main objectives of the Department of Music are to help each student attain through music the skills and proficiencies of an artist while he is gaining a broad general education; to develop talent to the highest degree possible; to train music teachers for their profession; and, through association with distinguished artists and teachers, to help all BYU students acquire discriminating taste and sound critical judgment.

The Bachelor of Arts degree is available with majors in music theory, music education, and music performance. The Bachelor of Music degree is available with majors in music performance, music pedagogy, music education, and composition. The master's and doctor's degrees may be taken in musicology, composition, music theory, music education, and music performance.

Every music major studies a certain amount of applied music in order to develop proficiency on his major instrument or in voice. Students who wish to become skilled performers in order to qualify themselves to assume positions in the concert or professional world should major in music performance; those who wish to become composers or arrangers should major in composition; those who desire to become music copyists or to teach theory of music should major in music theory; and students wishing to specialize in giving private lessons in a studio while developing excellent performance skills should major in music pedagogy.

Prospective school teachers have the opportunity to major in vocal or instrumental music. Each program is designed to emphasize the essential aspects of preparation for teaching in public schools. The master's degree program in elementary or secondary school music is designed to prepare teachers, supervisors, and music consultants who can help classroom instructors teach music effectively.

A cultural atmosphere seldom equaled is provided through concerts and recitals, including visiting groups and artists. The Department of Music sponsors more than 285 concerts and recitals each year, not including the visiting performing series provided by student body activities and by the lyceum committee.

There is a musical organization for every student at BYU who is interested in singing or in playing a musical instrument.

Prerequisites. The Music Department presupposes that a student who wishes to major in music will have had previous training in music before entering the University. In order to determine the degree of attainment in basic musical skills, each entering freshman and transfer student who desires to major in music will be given the Music Department entrance test, which is given each semester during the orientation period and at other times through the University Testing Service.

Recital Attendance. The Music Department annually presents numerous recitals, concerts, and performances. These offerings are augmented by the University series of recitals and concerts by world-renowned artists and major musical performing groups. A music major is required to attend at least sixteen of these musical events per semester in residence. He is responsible to record his attendance at performances, using forms provided by the Music Department. At the end of each semester he returns the forms to the College Advisement Center, D-444 HFAC, where they are placed in his files.

Piano Proficiency. All music majors are required to take a preliminary examination in piano. This examination is provided during orientation and registration. Proficiency at the level of easy piano accomplishments is required. Those not meeting this proficiency standard must make up the deficiency in either private or group piano study.

Proficiency Examinations on Major Instruments or Voice. Proficiency examinations for each music major are given near the end of each semester. Students perform representative works studied during the year. The student submits as a part of the examination a repertoire list indicating which pieces are to be performed for the examination. Forms outlining minimum proficiency requirements for each instrument and each major are available at the Music Department office. Performance majors have a senior recital in lieu of an examination in the fourth year, but others may elect to give a recital during any semester in lieu of the proficiency examination for that semester.

Recital Fees. A fee of $35 is assessed for graduate or undergraduate students' solo or joint recitals. This fee is for printing programs and recording the recital, a tape of which is given to the student.

D Credit. No D credit in music can be applied toward the degree.

Senior Comprehensive Examination. All graduating seniors must pass the Senior Comprehensive Examination two months prior to graduation.

Curriculum for Music Majors. Since the first-year program is identical for all majors, the area of specialization within the Music Department is not chosen until the beginning of the sophomore year. Admissions to the various specialized programs will be based upon the following points.

a. Composition majors: strong achievement in Music 195, 196, 200R, and approval of the composition faculty.
b. Music education: good balanced achievement in all course work and substantial progress in performance, as evidenced in the proficiency examination given at the close of the first year of study. Continuation is dependent upon recommendation of individual music education instructors with whom the student has studied.
c. Music theory majors: strong achievement in Music 195, 196, and 200R, and generally good scholastic achievement in other courses.
d. Performance majors: strong achievement in performance, as evidenced in the proficiency examination given at the close of the first year of study.
e. Pedagogy majors: substantial progress in performance and strong achievement in Music 565R and 566R.

The first-year course work for all music majors includes the following:

Course	F	W
English	3	3
Physical education	½	½
Relig. 121, 122	2	2
Health 130 (not required for music education students who will certify; suggested for music education people is humanities)		(2)
Music 195, 196	2	2
Music 200R	4	4
Music. 107, 108 (or proficiency)	(2)	(2)
Music 160R	2	2
Ensemble (band, orchestra, chorus, etc.)	1	1
Music 165 (for voice specialty)	(1)	

Music Minors

Students who desire an academic minor in music will take Music 195, 200R, 2 hours of ensemble, and 6 hours of electives in music. The Music Department offers no music minor leading to secondary teaching certification.

Elementary Music Education Minors. Prospective elementary school teachers who desire a minor in music are required to take Music 195 and specify 200R modules (4 hours), 421, 3 hours of ensemble (band, orchestra, or chorus), and 4 hours (2 hours of piano and 2 hours of voice) of class or private study until a functional proficiency in piano and voice is demonstrated.

Music Minor in Organ (19 hours): Those who desire to obtain a music minor in organ are required to take Music 159R and 160R (8 hours), 167, 195, 200R (3 hours), 201, and 468.

Degree in Performance

To receive a Bachelor of Music degree with a major in performance, a student must complete the first-year courses suggested above and the following courses during the remaining three years: Music 160R (8 hours), 200R (8 hours), 295, 296, 360R (8 hours), 472, 481 (except voice majors), 484, 485, 491, 565R and 566R (6 hours), and ensembles (8 hours). Keyboard majors substitute Music 262R, 263R, 391, and 463R for part of the ensemble requirement. Other majors are encouraged to vary their experience.

Majors in the various performance areas are required to take certain special classes in addition to the above requirements:

Organ majors—Music 167, 468.
Woodwind majors—Music 368 and 2 hours of chamber music.
Brass majors—Music 370 and 2 hours of chamber music.
String majors—Music 372 and 2 hours of chamber music.
Voice majors—Music 165, 166; German 101, French 101, Italian 101, or equivalent.

At least three weeks before the date of his senior recital, the student must appear in a recital audition to demonstrate readiness for the presentation of the required senior recital. This recital is normally presented during the Winter Semester of the senior year and replaces the audition for that semester.

The following are the general education requirements for performance majors: English (6 hours), biological science (3 hours), physical science (3 hours: Physics 167 recommended), social science (3 hours: Hist. 111 recommended), religion (14 hours), humanities (11 hours, including Music 484 and 485 and 5 hours of electives, among which it is recommended that Hum. 202 be included), Hist. 170, Health 130, and physical education (2 hours).

The following sequence of courses is recommended for majors in performance:

Sophomore	F	W
Religion	2	2
Language (voice majors)	4	4
Music 200R, 295, 296	6	6
Music 160R	2	2
Ensemble	1	1
Physical education	½	½
Hist. 170	3	
	18½	15½

Junior	F	W
Religion	2	2
Language (voice majors)	4	4
Music electives for voice or 481 for others	3	
Music 491		3
Ensemble	1	1
Music 360R	2	2
Music 472		3
Electives (must include special music classes)	2	1
General education	2	
	16	16

Senior	F	W
Music 484, 485	3	3
Ensemble	1	1
Music 360R	2	2
Electives (must include special music classes)		4
General education	10	6
	16	16

Degree in Pedagogy

To receive a Bachelor of Music degree in pedagogy, a student must complete the following courses:

Music Theory (27 hours)
195, 196, 200R (14 hours), 295, 296, 491

Music Literature and History (10 hours)
484, 485, 566R

Performance and Pedagogy (20 hours)
160R, 360R (16 hours); 565R (4 hours); senior recital (full or joint)

Special Area Requirements and Electives (28 hours)

- Piano: 262R (2 hours); 263R, 463R (6 hours); 265R (4 hours); 105R (2 hours organ); 160R (2 hours organ); electives (12 hours)
- Voice: 165, 166 (2 hours); German 101, French 101, Italian 101 (12 hours); vocal ensemble (at least one semester in opera); private piano (if needed, 4 hours beyond Music 108); electives (8 hours: additional piano study recommended)
- Organ: 167, 468 (4 hours); 263R, 463R (4 hours); 391, 392 (6 hours, if needed); private piano (2-4 hours); electives (12 hours: 472, 481 recommended)
- Strings: 372 (2 hours); large ensemble on major instrument (6 hours), on minor instrument(s) (2 hours); chamber ensemble (2 hours); electives (12 hours: additional private study on minor instruments of choice recommended)
  - Violin majors—one semester each of viola and cello (4 hours)
  - Viola majors—one semester each of violin and cello (4 hours)
  - Cello majors—one semester each of violin and viola (4 hours)

Degree in Music Theory

For a Bachelor of Arts degree with a composite major in music theory, a student is required to complete the following music courses or their equivalents: Music 103, 195, 196, 200R (14-18 hours), 295, 296, 391, 471, 472, 481, 482, 491, ensemble (4 hours in at least 2 different ensembles). If the specialty is piano, 12 hours of Music 160R and 360R (3rd-year proficiency) are required; on specialties other than piano, 8 hours of Music 160R (2nd-year proficiency) are required.

Music 484 and 485 should be taken to satisfy the general education requirements in humanities and fine arts.

The hours to be taken in individual or group instruction may be reduced if a student, as determined by entrance examinations, has already had considerable training in these areas. At the end of each semester of individual instruction, the student takes an examination on his major instrument or in voice to determine his level of achievement. For the examination, each candidate submits a list of his repertoire indicating compositions or studies especially prepared for the examination. Forms on which a record of the student's repertoire is kept and outlines of instrumental and vocal proficiency requirements are available at the Music Department office.

Majors in music theory participate in musical ensembles for a minimum of four semesters of undergraduate training. The student performs in at least two ensembles. A student whose specialty is a band or orchestral instrument takes two hours of instrumental ensemble and two hours of choral ensemble. A student whose specialty is voice sings in at least two choral ensembles.

Every music theory major must appear a minimum of fifteen minutes in solo or chamber music recitals.

Theory majors with keyboard specialty must meet third-year proficiency requirements. Those with other specialties must meet second-year proficiency requirements and pass a functional piano examination equivalent to Music 108 proficiency, preferably during the first semester.

The following sequence of courses is recommended for majors in music theory:

Sophomore	F	W
Physical education	½	½
Religion	2	2
Hist. 170		3
Social science	3	
Lang. 102		4
Music 200R, 295, 296	6	6
Music 160R (specialty)	2	2
Electives (Lang. 101 if needed)	4	
	17½	17½

Junior	F	W
Biological science	3	3
Lang. 201	4	
Religion	2	2
Social science		2
Music 391, 392	3	3
Music 491		3
Music 160R or 360R (specialty)	2	2
Ensemble	1	1
	15	16

Senior	F	W
Music 484, 485	3	3
Physical science	3	3
Music 471, 472	3	3
Music 481, 482	3	3
Music 160R or 360R (specialty)	2	2
Elective		2
Religion	2	
	16	16

Degree in Music Education (Composite Major)

To receive a Bachelor of Music Degree with a composite music education major, a student is required to complete the following music courses or their equivalents:

	Hours
Music 195, 196, 200R, 295, 296, 472, 481	26
Music 363*, 364*, 367, 368, 370, 372	9
Music 374, 375, 376, 377, 378	11
Music 484, 485	6
Ensemble	6
Private instruction on specialty	12
Music 165†, 566†	

*For students with instrumental specialties only.
†For students with vocal specialties only.

(This degree requires additional professional education courses to meet teaching certification requirements. For details see the Education section of this catalog.)

The 6 hours of ensemble for music education majors with a wind or percussion emphasis are divided in the following manner:

1 hour of chamber music.

5 hours of large ensemble. The bulk of this requirement will be fulfilled by participation in 138R and 338R, sections 1 and 2, and in 147R and 347R sections 1 and 2.

Only 1 hour of credit from each of the following may count toward this large ensemble requirement:
Marching-Varsity Band (135R and 335R)
Jazz Ensemble (144R and 344R)

138R and 338R, section 3, will not count toward fulfilling this requirement.

For those with a string emphasis the hours are divided as follows:

1 hour of chamber music.

5 hours of large ensemble. The bulk of this requirement will be fulfilled by participation in 147R and 347R, sections 1 and 2.

Only 1 hour of credit from chamber orchestra (148R and 348R) may count toward this large-ensemble requirement.

147R and 347R, section 3, will not count toward fulfilling this requirement.

Voice majors must sing in at least two types of choral ensembles, and string majors must perform for at least four semesters with the orchestra.

The following sequence of courses is suggested:

Sophomore	F	W
Music 200R, 295, 296	4	4
Music 165 (for vocal emphasis)	(1)	
Music 160R, 360R	2	2
Music 363, 374 (for instrumental emphasis)	(1)	(1)
Ensemble	1	1
Humanities		3
Music 368		2
Social science	3	
Religion	2	2
Hist. 170	3	
Physical education	½	½
	15½(17½)	14½(15½)

Junior	F	W
Music 472	3	
Music 484		3
Music 160R, 360R	2	2
Ensemble	1	1
Music 367	1	
Music 566R (for vocal emphasis)	(2)	
Music 370	2	
Music 372	2	
Music 375		2
Music 481		3
Physical science	3	
Biological science		3
Religion	2	2
	16(18)	16

Senior	F	W
Music 374	2	
Music 376	2	
Music 377	3	
Music 378	2	
Music 485		3
Religion	2	
Health 362	2	
Ed. 301B		2
Ed. 310		2
Ed. 403		4
Ed. 415		2
Music 479		8
	16	18

Students electing a Bachelor of Arts degree with a composite music education major should take the above outline plus 12 hours of foreign language, 3 hours of physical science, 3 hours of biological science, and 2 hours of social science. Only 6 hours of humanities are required.

Every music education major must pass a functional piano proficiency examination or complete Music 107 and 108 before being permitted to student teach.

Music education majors also take a proficiency examination each semester covering the materials studied in the student's private lessons on his major instrument or voice. The sophomore proficiency standards must be passed before a student is allowed to continue into advanced study (Music 360R) or to register for student teaching. A minimum of one year of advanced study is required before graduation. The final proficiency examination is taken at the end of the year of advanced study, at which time the student will have completed all performance requirements for his degree.

Every music education major must have appeared a minimum of thirty minutes in solo and chamber music recital, twenty minutes of which must be solo appearance time.

Degree in Music Composition

The music composition major is designed for those who would like to become well prepared as composers. Although the immediate demand for composers is limited, there are a great many personal satisfactions to be derived in this field.

The requirements for the degree are as follows:

1. General education requirements:	Hours
English	6
Physical education	2
Religion	14
Hist. 170	3
Social science (Hist. 111)	3
Physical science (Physics 167 recommended)	3
Biological science	3
Humanities (including Music 484, 485)	11

2. Music theory	Hours
Music 195, 196, 200R	8
Music 295, 296	8
Music 471, 472	6
Music 481, 482	6
Music 491	3
Music 391	3

An additional semester of keyboard harmony is available for those whose schedules permit it.

3. Music performance, ensemble, and conducting:	Hours
Music 160R, 360R (major instrument and/or keyboard)	12
Ensemble	5

The 12 hours in music performance should be used for the refinement of the student's performing sensitivity and the acquisition of substantial keyboard technique. The exact ratio of hours in each of these areas is to be determined by the student and his adviser, but a typical case would devote 4-6 hours to keyboard and 6-8 hours to the major instrument. Where the major instrument is piano, part of the 12 hours should be devoted to the study of an orchestral instrument and/or voice.

4. Composition seminar—16 hours:

This seminar meets for one hour per week, during which time the student composers examine each other's efforts, discuss issues, hear lectures by various faculty members, meet with visiting composers, hear performances of their works, and engage in such other activities as the teachers of the seminar may devise. In addition to the seminar, a half-hour session with a member of the composition faculty is required of the student composers.

5. Electives—8 hours.

Piano Technician

Supervisor: Lynn H. Hansen

This associate-degree program provides special preparation for students desiring to become piano technicians. Graduates from this program can qualify for employment as technicians in piano factories, music companies, schools, and governmental agencies, as well as for self-employment. Students desiring to enter this program must satisfactorily pass the auditory perception test and secure the approval of the program supervisor.

First Year	F	W
Music 101, 175	3	3
Music 163, 164	3	2
Electives	3	3
Engl. 111, 212	3	3
Health 130	2	
Physics 167		3
Rel. 121, 122	2	2
Physical education	½	½
	16½	16½

Second Year	F	W
Music 195, 264, 275	7	
Music 200R, 276		6
Hist. 170		3
Des. Tech. 111	3	
Biological science		3
Industrial education	2	
Social science		3

Acctg. 201	3	
Religion	2	2
	17	17

Courses

101. Introduction to Music. (3:3:0) (G-HA) Earl, Harris, Wakefield
Introduction to the fundamental concepts of melody, rhythm, harmony, form, styles, etc., as a basis for understanding and enjoying the masterpieces of the various musical eras. Open to all students without previous training in music.

103. Survey of Music Literature. (2:2:0) (G-HA m) Prerequisite: for nonmusic majors and minors—Music 101 or equivalent. Smith
An intensive study of the history of music, including styles, forms, and mediums from the Middle Ages to the present.

105R. Group Performance Instruction. (2:2:0 ea.)
Class instruction for beginners in voice, piano, organ, and instrumental music.

106. Group Organ Instruction. (2:2:0) Prerequisite: moderately advanced proficiency at piano. Keeler
Elements of organ manual and pedal technique, elementary repertoire, application to church service.

107, 108. Group Piano Instruction. (2:2:0 ea.) Foxley, Keeler, Wakefield
Designed for those music majors and minors who cannot pass the functional piano proficiency examination. Not open to piano majors. Minimum of one hour daily practice required outside of the class.

110R. University Chorale. (1:0:5 ea.) Robison

116R. Male Chorus. (1:0:5 ea.) Prerequisite: consent of director. Woodward

119R. Women's Chorus. (1:0:5 ea.) Prerequisite: consent of director. Downs

125R. A Cappella Choir. (1:0:5 ea.) Prerequisite: consent of director. Woodward

128R. Music Theater Chorus. (1:0:5 ea.) Prerequisite: consent of director.
Open to all students selected by audition to participate in the chorus of Music Theater.

129R. Music Theater Performance. (1:2:4 ea.) Prerequisite: consent of director.
Participation as soloists, coaches, or directors in Music Theater performances, and includes analysis of the current semester's repertoire and performances.

131R. Oratorio Choir. (1:0:5 ea.) Prerequisite: consent of director. Halliday

135R. Varsity and Marching Band. (1:0:5 ea.) Prerequisite: consent of director. Bastian

138R. Concert Band. (1:0:5 ea.) Prerequisite: consent of director. Dayley

144R. Jazz Ensemble. (1:0:5 ea.) Prerequisite: consent of director. Dayley

147R. Symphony Orchestra. (1:0:5 ea.) Prerequisite: consent of director. R. Laycock, Sardoni

148R. Chamber Orchestra. (1:0:2 ea.) Prerequisite: consent of director. Dalton
Repertoire for small orchestra, chosen from all periods, will be explored and/or prepared for performance.

149R. Introduction to Concert Music. (1:1:0 ea.) Powley
Illustrated lectures in preparation for selected concert attendance given before each concert or recital.

150R. Chamber Music: Brass, Piano, Ancient Instrument, String, Vocal, Percussion, or Woodwind Ensemble. (½:0:2)

159R. Private Instruction. (2:1:0 ea.)
Fifteen half-hour lessons per semester. One to two hours of practice per day required. Nonmusic majors only. Special fee.

Brass—Trumpet, Cornet, French Horn, Trombone, Baritone, Tuba: Dayley, R. Laycock, Unsworth
Harpsichord: Mathiesen, Wakefield
Organ: Belnap, Cundick, Foxley, Keeler, Longhurst, Manookin
Percussion: Powley
Piano: Anderson, Davis, Foxley, Nibley, Pollei, Smith, Wakefield
Recorder: Mathiesen, Wakefield
Strings—Violin, Viola, Cello, String Bass, Classical Guitar, Harp: Dalton, Goodman, Kalt, H. Laycock, Nordgren, Sardoni, Sheffield
Voice: Arbizu, Curtis, Davis, Downs, Earl, Gibbons, Halliday, Harris, Webb, Woodward
Woodwinds—Flute, Oboe, Clarinet, Bassoon, Saxophone: Randall, Stubbs, Wight, Williams

160R. Private Instruction. (2:1:0 ea.) Prerequisite: admission by audition.
Fifteen 45-minute lessons per semester. One to three hours of practice per day required. Majors only. Special fee. (For instructors see Music 159R.)

163. History and Development of the Piano. (3:3:0) Prerequisite: consent of instructor. Hansen
The musical and technical development of the piano and its ancestral instruments in their social contexts through the present day.

164. Piano Tuning Theory. (2:2:0) Prerequisites: Music 163, consent of instructor, and special auditory test. Hansen
Theory of piano keyboard temperaments. Includes Pythagorean, Equal Aron's (Just) and Marpurg's (Meantone), and tool use.

165, 166. Diction for Singers. (1:1:1 ea.) Prerequisite: should be taken concurrently with private or group voice study. Music 165 a prerequisite for Music 166. Required for all applied voice majors. Music education voice specialty required to take 165 only. Downs, Halliday
First semester: a study of English, Italian, and Latin diction as related to singing. Second semester: a study of German and French diction as related to singing.

167. Organ Problems. (2:2:0) Keeler
Registration, accompaniment playing, and related problems.

175. Piano Tuning Laboratory. (3:1:7) Prerequisites: Music 163, and concurrent registration in Music 164. Hansen
At least seven supervised hours of weekly piano tuning experience. A minimum of four pianos per week will be tuned by each student.

187R. Composition. (2:1:2) (m) Prerequisites: performance ability on the major instrument, piano proficiency, and evidence of composing ability. Bradshaw, Dayley, Manookin
Basic techniques of contemporary music, smaller forms for keyboard, choral, and instrumental composition, including church music.

195. Expanding Musicianship Core I. (2:2:0)
Musicianship experience in performing, creating, analyzing, evaluating, and teaching music. A number of modules of Music 200R must be taken concurrently. Majors and minors.

196. Expanding Musicianship Core 2. (2:2:0) Prerequisite: Music 195.
Musicianship experience in performing, creating, analyzing, evaluating, and teaching music. A number of modules of Music 200R must be taken concurrently. Majors and minors.

200R. Expanding Musicianship Resource Modules. (½-5: Arr.:Arr.)
Music information and skills taken concurrently with the Expanding Musicianship Core; a selection is made from the total number of modules according to the student's needs.

201. Baton Technique and Hymnody. (2:2:0) Downs, Earl
Introduction to the fundamental concepts and skills of baton technique and congregational hymn singing and conducting. Open to all students.

202. Essentials in Conducting. (2:2:0) Earl, R. Laycock, Williams
The fundamental course for the development of complete body skills and coordinations necessary for the conductor.

262R. Piano Sightreading. (1:1:2 ea.) Nibley, Smith

263R. Piano Accompaniment. (1:1:2 ea.) Smith
Study and practical application of the basic aspects of accompanying.

264. Piano Technology. (2:2:0) Prerequisites: Music 164, 175. Hansen
This class relates every part of the piano to the whole and teaches mechanical regulation of action, pedal traps, care, and general maintenance.

265R. Elementary Pedagogy. (2:2:1 ea.) Prerequisite: student must be a music pedagogy major. Anderson, Nibley, Pollei, Smith
Study of performance pedagogy for beginning study and supervised private study.

275. Piano Tuning and Technical Laboratory. (3:1:7) Prerequisites: Music 164, 175. Hansen
More advanced tuning and mechanical mastery of piano regulating. Requires a minimum of four pianos weekly (7 hours) regulated or tuned.

276. Fine Tuning and Regulating Laboratory. (4:1:9) Prerequisites: Music 264, 275. Hansen
Fine tuning and regulating of both uprights and grands.

295. Expanding Musicianship Core 3. (2:2:0) Prerequisite: Music 196.
Musicianship experience in performing, creating, analyzing, evaluating, and teaching music. A number of modules of Music 200R must be taken concurrently. Majors only.

296. Expanding Musicianship Core 4. (2:2:0) Prerequisite: Music 295.
Musicianship experience in performing, creating, analyzing, evaluating, and teaching music. A number of modules of Music 200R must be taken concurrently. Majors only.

310R. University Chorale. (1:0:5 ea.) Robison

316R. Male Chorus. (1:0:5 ea.) Prerequisite: consent of director. Woodward

319R. Women's Chorus. (1:0:5 ea.) Prerequisite: consent of director. Downs

325R. A Cappella Choir. (1:0:5 ea.) Prerequisite: consent of director. Woodward

328R. Music Theater Chorus. (1:0:5 ea.) Prerequisite: consent of director.
Open to all students selected by audition to participate in the chorus of Music Theater.

329R. Music Theater Performance. (1:2:4 ea.) Prerequisite: consent of director.
Participation as soloists, coaches, or directors in Music Theater performances; includes analysis of the current semester's repertoire and performances.

331R. Oratorio Choir. (1:0:5 ea.) Prerequisite: consent of director. Halliday

335R. Varsity and Marching Band. (1:0:5 ea.) Prerequisite: consent of director. Bastian

336. Fundamentals and Techniques of Marching Band. (2:2:2) Prerequisite: Music 296.
Designed to help music education majors learn the techniques of planning, charting, and scoring music for marching bands.

338R. Concert Band. (1:0:5 ea.) Prerequisite: consent of director. Dayley

344R. Jazz Ensemble. (1:0:5 ea.) Prerequisite: consent of director. Dayley

345. Music for Elementary Teachers. (3:3:2) Davis, Foxley, Webb
The study of current trends in elementary music with emphasis on vocal and instrumental performance, listening and analysis, experimentation, improvisation, and composition appropriate for elementary school children. Required of all elementary education majors and music minors.

347R. Symphony Orchestra. (1:0:5 ea.) Prerequisite: consent of director. R. Laycock, Sardoni

348R. Chamber Orchestra. (1:0:2 ea.) Prerequisite: consent of director. Dalton

349R. Collegium Musicum. (2:Arr.:Arr. ea.) Smith
A seminar in performance practice and practical editorial techniques for music. Each member of the seminar prepares and presents a treatment of selected compositions according to the performance practice theories applicable. In addition, a few practical notation projects are prepared and performed by the class as a whole. Open to music majors; open to nonmajors on consultation with the instructor.

350R. Chamber Music: Brass, Piano, Ancient Instrument, String, Vocal, or Woodwind Ensemble. (½:0:3 ea.)

359R. Private Instruction. (2:1:0 ea.)
Nonmusic majors only. Fifteen 45-minute lessons per semester. One to two hours of practice per day required. Special fee. (For instructors, see Music 159R.)

360R. Private Instruction. (2:1:0 ea.) Prerequisite: pass sophomore proficiency standards.
Fifteen 45-minute lessons per semester. Two hours of practice required per day. Majors only. Special fee. (For instructors see Music 159R.)

363, 364. Vocal Workshop. (1:0:2 ea.) Prerequisite: Music 363 must be taken before 364. Arbizu, Curtis, Downs, Webb
Voice building, problems of solo and group singing, and survey of solo and small ensemble literature. Designed for music education majors with instrumental specialties only. Those students taking voice as a specialty should not enroll in this class.

367. Percussion Workshop. (1:0:3) Prerequisite: Music 196 or equivalent. Powley
Designed to help music education majors learn to play and to teach percussion instruments. Survey of materials.

368. Woodwind Workshop. (2:0:5) Prerequisite: Music 196 or equivalent. Randall, Stubbs
Designed to help music education majors learn to play and to teach woodwind instruments. Survey of materials.

370. Brass Workshop. (2:0:5) Prerequisite: Music 196 or equivalent. Unsworth
Designed to help music education majors learn to play and to teach brass instruments. Survey of materials.

372. String Workshop. (2:0:5) Prerequisite: Music 196 or equivalent. Kalt, Sardoni
Designed to help music education majors learn to play and to teach string instruments. Survey of materials.

374. Choral Practicum. (2:0:5) Prerequisites: Music 165, 202, 296, 364, or equivalent. Gibbons

Designed for music education majors. Experience in choral conducting and singing of typical school materials. Observation and application of rehearsal techniques.

375. Instrumental Practicum. (2:0:5) Prerequisites: Music 202, 296, 367, 368, 370, 372, or equivalent. R. Laycock

Experience for music education majors in orchestra and band conducting and playing of school materials on the students' minor instruments. Observation and application of rehearsal techniques.

376. Music Specialist in the Elementary School. (2:2:1) Prerequisites: first year music theory and Music 345 or equivalent. Gibbons

The role of the music specialist as teacher, resource person, consultant, or supervisor in the elementary school. Required of all music education majors. Open to elementary education majors with a music minor, in lieu of Music 337.

377. Secondary Teaching Procedures. (3:3:1) Prerequisite: Ed. 301. Gibbons, Mason

The development of music education concepts: philosophy, objectives, principles, management, and methodology.

378. General Music Practicum. (2:2:5) Prerequisite: Music 345. Gibbons

Designed for music education majors. Experience in materials, methodology, and management of the general music education program in public school.

387R. Advanced Composition. (2:1:2 ea.) (m) Prerequisite: Music 187. Bradshaw, Dayley, Manookin

391. Keyboard Harmony. (3:3:0) Prerequisites: Music 196 and moderately advanced keyboard technique. Keeler

Harmonization of figured and unfigured basses and other voices; cadences, sequences, transpositions, modulations, and improvisations at the keyboard.

392. Keyboard Harmony. (3:3:0) Prerequisite: Music 391. Keeler

Continuation of Music 391, emphasizing secondary triads and seventh chords, nonharmonic tones, secondary dominants and diminished sevenths, augmented triads and augmented sixths, chromatic modulation, and improvisation. Harmonizing of chorales and figured basses.

421. Materials and Music Literature for the Elementary Child. (1:1:1) Prerequisite: Music 345. Davis, Gibbons

Designed to develop a basic repertoire of children's songs for the elementary education music minor.

463R. Piano Acompanying. (1:0:3) Smith

468. Organ Problems. (2:2:0) Prerequisites: Music 167, advanced standing as an organ student, and consent of instructor. Keeler

Registration, accompaniment playing, and related problems.

471. Sixteenth-Century Counterpoint. (3:3:0) Prerequisite: Music 296. Belnap, Cundick, Nordgren

472. Eighteenth-Century Counterpoint. (3:3:0) Prerequisite: Music 296. Bradshaw, Cundick, Manookin

479. Secondary Student Teaching. (8:full day, 1st and 2nd blocks of semesters) Prerequisite: Music 377. Gibbons, Mason

See Ed. 479.

481, 482. Orchestration. (3:3:0 ea.) Prerequisite: Music 296. Bradshaw, Sardoni, Williams

484, 485. History of Music. (3:3:0 ea.) (G-HA) Prerequisites: Music 296 (music majors), or Music 101 and 103, or equivalent (nonmajors). Mathiesen, Powley

491. Analytical Techniques. (3:3:0) Prerequisite: Music 296. Longhurst, Manookin, Nordgren

Development of skill in recognizing processes by which the basic elements of music are organized into compositions of various forms and styles.

537. Music for Elementary School Teachers. (2:2:0) Prerequisite: Music 345 or elementary teaching experience. Davis

Experiences in teaching various music activities in the elementary school.

565R. Pedagogy. (2:2:0 ea.) Prerequisite: advanced standing in performance.

Comprehensive study of performance pedagogy for major instrument or voice and supervised private teaching.

566R. Applied Music Literature. (2:2:0 ea.) Prerequisite: senior standing as a performance music major.

Intensive study of literature for major instrument. Taken by senior and graduate students in performance, with sections for voice, piano, organ, and orchestral instruments.

587, 588. Composition. (3:3:0 ea.) Prerequisite: Music 296. Bradshaw, Manookin

601. Music in the Elementary School. (2:2:0) Prerequisites: Music 345 and the equivalent of an elementary education teaching minor in music. Davis

603. Music in the Junior High School. (2:2:0) Prerequisite: Music 601. Davis, Gibbons

605. Influence of Music on Behavior. (3:3:0) Prerequisite: general psychology, sociology, or equivalent. Goodman, Mason

610. Supervision and Administration of Music in the Public Schools. (2:2:0) Goodman, Mason

612. Music Education in Society. (3:3:0) Prerequisites: Music 484, 485, or equivalent. Davis, Goodman, Mason

613. Basic Concepts in Music Education. (2:2:0) Davis, Goodman, Mason

615. Vocal Methods, Materials, and Resources. (2:2:0) Prerequisite: Music 479 or equivalent. Halliday, Woodward

616. Instrumental Methods, Materials, and Resources. (2:2:0) Prerequisite: Music 479 or equivalent. Goodman

620R. Advanced Instrumental Conducting. (2:2:3 ea.) Prerequisites: Music 296, 374, 375, 485, or equivalent. R. Laycock, Sardoni

621R. Advanced Choral Conducting. (2:3:3 ea.) Prerequisites: Music 166, 296, 364, 374, 375, 485, or equivalent. Halliday, Woodward

625R. Summer Music Clinic. (1-2:4:4 ea.) (Two weeks during clinic.)

630R. Special Lectures in Music Education. (1-3:Arr.:Arr. ea.) Prerequisite: certification in music plus teaching experience.

635. Musical Research Techniques. (3:3:0) Prerequisite: graduate standing or consent of instructor. Mathiesen

636. Music in the Middle Ages. (3:3:1) Prerequisites: Music 484, 485, or equivalent. Powley

637. Music in the Renaissance. (3:3:0) Prerequisites: Music 484, 485, or equivalent. Powley

638. Music in the Baroque Era. (3:3:0) Prerequisites: Music 484, 485, or equivalent. Powley

639. Music in the Classic Period. (3:3:0) Prerequisites: Music 484, 485, or equivalent. Mathiesen

640. Music in the Romantic Period. (3:3:1) Prerequisites: Music 484, 485, or equivalent. Mathiesen

641R. Lectures in Musicology. (1-3:Arr.:Arr. ea.) Prerequisites: Music 484, 485, or equivalent. Mathiesen, Powley

648R. Collegium Musicum. (2:Arr.:Arr. ea.) Prerequisite: consent of director. Smith

652. History of Notation and Paleography. (3:3:0) Prerequisites: Music 484, 485, 636, or equivalent. Offered 1975-76 and alternate years. Powley

656. Hymnology. (2:2:0) Prerequisites: Music 484, 485, or equivalent. Earl

660R. Graduate Private Instruction. (2:1:0 ea.) Prerequisite: completion of undergraduate proficiency requirements and audition.

663. Solo Recital. (2:1:0) Williams

673. Advanced Problems in Music Structure. (3:3:0) Prerequisites: Music 472, 491. Bradshaw, Manookin

675. Music of the Contemporary Period. (3:3:0) Prerequisites: Music 484, 485, or equivalent. Mathiesen

686. Pedagogy of Music Theory. (3:3:0) Prerequisite: Music 296. Nordgren

687, 688. Composition. (3:3:0 ea.) Prerequisite: Music 588 or equivalent. Bradshaw, Manookin

693. Proseminar in Music. (2:2:0) Prerequisites: Music 484, 485, 635, or equivalent, and approval of advisory committee. Mathiesen

Required of all candidates for graduate music degrees.

694R. Independent Readings. (1-3:Arr.:Arr. ea.) Prerequisite: Music 693 or equivalent.

697R. Recital for Master of Music Degree. (4:Arr.:Arr. ea.) Prerequisites: approval of advisory committee and graduate music faculty. Williams

Required of all Master of Music degree candidates.

698. Composition for Master's Degree. (2-6:Arr.:Arr.) Prerequisite: approval of the Music Department graduate faculty, based upon evidence of ability in composition as manifested in a preliminary work. Bradshaw, Manookin

699. Thesis for Master's Degree. (6-9:Arr.:Arr.) Prerequisite: approval of the Music Department graduate faculty.

753. Advanced Problems in Notation. (3:3:0) Prerequisite: Music 652. Powley

Offered same year as Music 652.

754. History of Musical Instruments. (3:3:0) Prerequisites: Music 484, 485, or equivalent. Williams

Offered 1975-76 and alternate years.

785. Historical Aspects of Music Theory. (3:3:0) Prerequisite: Music 296. Nordgren

794R. Seminar in Music. (1-3:Arr.:Arr. ea.) Prerequisites: Music 635, 693, or equivalent, and approval of graduate advisory committee.

799. Dissertation for Ph.D. Degree. (Arr.) Prerequisite: approval of graduate advisory faculty.

Nursing

Professor: Cope (Dean, 2240 SFLC).
Associate Professors: Van Drimmelen, Wood.
Assistant Professors: Alley, Andersen, Bethers, Dayton, Drake, Hammond, Harris, Jensen, Kennington, Leifson, Lyons, Marshall, May, Merrill, E. Murphy, M. Murphy, Richardson, Riddle, Schmidt, Tillery, Wiker, Willhite.
Instructors: Bartholomew, Brumfield, Carter, Evans, Groberg, Hine, Lunt, Martin, Rae, Talmage, Williams.

Service Courses

Nurs. 288, Family Health and Home Nursing, and Nurs. 425, Home Nursing Instructorship, are offered by the College of Nursing for students in other majors.

Curriculum

The College of Nursing offers a program divided into three phases leading to the following degrees: Associate Degree (A.D.), Bachelor of Science (B.S.), and Master of Nursing (M.N.). The A.D. degree phase is designed for students who want to be able to provide general nursing care in a variety of health-illness situations and who desire to complete the B.S. degree without loss of time or credits. The B.S. degree phase prepares students to be generalists in primary-care nursing practice on a professional level in various health-care situations and settings. The M.N. degree phase prepares graduate, registered nurses to be master clinicians in specialty areas of nursing and also provides experiences in teaching, supervision, and research for leadership positions.

The combined program of three phases forms a modified self-paced, individualized curriculum that allows for multiple entrances and exits and provides for career mobility from technical through professional through specialist nursing practice without loss of time or credits.

The student is eligible to take the licensing examinations to become a registered nurse after the completion of the A.D. or the B.S. phases, whichever she chooses.

The courses for the A.D. and B.S. phases follow:

Associate-Degree Phase Courses

First Semester	Hours
Chem. 102	5
Relig. 121	2
Zool. 260, 261	6
Psych. 111	3
	16

Second Semester	
Micro. 321, 322	4
Nurs. 100	1
Nurs. 106	7
Engl. 111	3
Relig. 122	2
Physical education	½
	17½

Third Semester	
Religion	2
FSN 115	2
CDFR 210	3
Nurs. 156	7
Physics 100	3
	17

Fourth Semester	
Religion	2
Nurs. 206	7
Engl. 215 or 316	3
Sociol. 350	3
	15

Fifth Semester	
Religion	2
Nurs. 256	8
Nurs. 390R	2
Physical education	½
Hist. 170	3
	15½

Baccalaureate Degree Phase Courses

The schedule for the baccalaureate phase will be as follows:

Sixth Semester	Hours
Chem. 281	3
Religion	2
Zool. 361	4
Nurs. 306	3
Nurs. 390R	2-3
Physical education	½
	14½-15½

Seventh Semester	
Religion	2
Stat. 221	3
Nurs. 356	7
Nurs. 390R	1
Elective core	3
	16

Eighth Semester	
Religion	2
Physical education	½
Humanities	3
Nurs. 406	7
Nurs. 390R	1
Elective core	3
	16½

Ninth Semester	
Religion	2
Humanities	3
Nurs. 456	7
Nurs. 390R	2
Elective	3
	17

Prospective Students

Prospective nursing students are advised to take the following courses in high school: three or four units of English, intermediate algebra, geometry, chemistry, biology, and physics.

For admission to the College of Nursing's clinical program, see Admission Policies and Criteria under College of Nursing in the Colleges section.

Transfer Students

Students may find little correspondence between nursing requirements at BYU and some other schools. To avoid unnecessary delay, prospective nursing majors should consider initial enrollment at BYU. Those enrolling elsewhere, but who expect to transfer to BYU, should contact the College of Nursing Advisement Center before beginning work at another institution. Also, placement of transfer students in the nursing major is done on an individual basis and requires application to the College of Nursing Advisement Center.

Special Examinations

All students entering Nurs. 106 are required to take a four-hour battery of tests administered through the research component of the College of Nursing. Data from the tests are being compiled for a long-term study of prediction of success in nursing. National examinations are also given periodically.

Grade Requirement

Students must earn a C or above in each of the courses in order to remain in the program.

Courses

100. Survey of Nursing Functions. (1:1:0) E. Murphy
Overview of nursing with emphasis on professional responsibilities.

106. Nursing I. (7:1:18) Prerequisites: Chem. 102, Psych. 111, Zool. 260 and 261; completion of or concurrent registration in Micro. 321, 322.
Study of healthy and ill individuals and establishment of nurse-patient relationships. Assessment of adaptive processes and development of related technical skills.

156. Nursing II. (7:1:15) Prerequisites: Nurs. 106; completion of or concurrent registration in FSN 115, CDFR 210, Physics 100.
Experiences in providing care to individuals with moderately complex medical-surgical problems.

206. Nursing III. (7:1:18) Prerequisites: Nurs. 156; concurrent registration in Sociol. 350.
Experience in maternal, newborn, and child nursing.

256. Nursing IV. (8:1:21) Prerequisites: Nurs. 206; concurrent registration in Nurs. 390R.
Experiences with the team in providing care to patients with complex medical-surgical and psychiatric problems.

288. Family Health and Home Nursing. (1:1:1) Schmidt
For nonmajors. Essential knowledge and attitudes about healthful family living. Skills in giving home nursing care to sick or injured. Essentials of maternal health and child care.

306. Nursing V. (3:1:8) Prerequisites: Completion of Nurs. 256; concurrent registration or completion of Chem. 281 and Zool. 361.
Utilization of physiological, psychological, and sociological principles in primary-care nursing experiences.

356. Nursing VI. (7:1:18) Prerequisites: Nurs. 306; concurrent registration in Nurs. 390R.
Emphasis on primary care in various areas of defined nursing practice: emergencies, intensive care, rehabilitation.

390R. Independent Study in the Practice of Nursing. (1-3:3:0) Prerequisite: consent of instructor.

406. Nursing VII. (7:1:18) Prerequisites: Nurs. 356; concurrent registration in Nurs. 390 R.
Utilization of public health principles in providing a broad range of community health nursing services.

410. Nursing Practice Workshop. (1-3:0:0) Prerequisite: consent of instructor.

425. Home Nursing Instructorship. (2:2:1) Prerequisite: completion of Ed. 301 or consent of instructor. Schmidt
Designed to develop skill in performing and teaching basic home-nursing procedures necessary in the care of the sick and injured and in mother and baby care.

456. Nursing VIII. (7:1:18) Prerequisites: Nurs. 406 and concurrent registration in Nurs. 390R.
Application of leadership principles in the comprehensive delivery of health care in an area of student's choice.

Organizational Behavior

Professors: Dalton, Dyer, Daniels (Psychology), Moffitt.
Associate Professors: Covey, Ritchie, Thompson (Chairman, 263 JKBA).
Assistant Professors: Cherrington, Wright (Political Science).

The Department of Organizational Behavior has as a major objective the training of persons who will be working in organizations and whose concern is building systems that will better meet the needs of people and accomplish the organizational goals. Professional development in this field centers on understanding the nature of organizations as systems, the management process, organization change and development, and the role of the organizational change agent. This program will lead to careers in personnel management, management training, organization development, industrial relations, organization consulting, and research and teaching in the area of organizational behavior.

The graduate program in the department is divided into two stems. The management development stem is geared primarily to the training of those persons in the Masters of Business Administration, Public Administration, and other graduate programs to fulfill positions at the management and administrative levels. The program is action-based and designed to help the student develop effective management and development skills. The student who completes work in the management development stem should be better able to (1) diagnose human and organizational problems, (2) develop skills for working with people to solve these problems, (3) design more effective programs for achieving organizational goals, (4) develop and implement an effective theory and philosophy of management, (5) develop a professional management style which allows him to work effectively in the organization stem, and (6) develop his own personal leadership potential. Classes in the management development stem are Org. Behav. 321, 421, 425, 523, 610, 625, 640, 660R, 670.

The other stem of the department is the professional stem. It is designed to prepare those people who plan to become professional consultants, trainers, or organization development specialists. The degree is a professional degree and the student will spend two years in a unique program to develop professional skills. Classes in the professional stem are Org. Behav. 610, 625, 640, 650, 660R, 669, 670, 672, 679, 680, 689R.

Undergraduate Classes

There is no undergraduate degree available in the Department of Organizational Behavior. Undergraduate classes (Org. Behav. 320, 321, 421, 425) are offered to students who are interested in preparing themselves in areas of leadership in many different fields.

Graduate Program

The Master of Arts degree in organizational behavior may be obtained after successfully completing the program in the professional stem. This program is flexible and offers the student an opportunity to prepare himself in his selected area of competency. Part of the program includes internship work in a professional capacity for an organization. No thesis is required, but the student must prepare and defend a research report on his internship.

While applicants of differing backgrounds may be admitted, it is desirable that they have substantial training in sociology, psychology, statistics, research methods, business management, political science, or related fields. Previous business and work experience is also desirable.

Courses

320. Leadership Development (3:2:2) Covey, Daniels, Dyer

The basic principles and practices of successful leadership will be experienced, including work in decision making, communications, planning, team building, motivation, and interpersonal skills.

321. Fundamentals of Organizational Behavior. (3:3:0)
Analysis of individual group and organization variables which inhibit or facilitate effective organizational functioning. Topics include motivation, rewards, leadership, conflict, decision making, structure, evaluation, and change.

421. Management Development I: Practicum in Small Group Work. (3:3:0) Prerequisite: Org. Behav. 321.
Improvement of skills in effectively working with small groups—cases, actual group work, etc.

425. Personnel Management. (3:3:0) Prerequisite: Org. Behav. 321.
Developing skill in dealing with problems and challenges of the personnel manager's office: employee situation, system of compensation, etc.

522. Management Development II: Case Histories and Practicum in Interpersonal Relations. (3:3:0) Prerequisite: Org. Behav. 321.
Application of skills in problem diagnosis, empathy, and communications in two-person settings—cases, and individual student commitment and involvement.

523. Leadership in Organizations: Case Histories and Practicum. (3:3:0) Prerequisite: Org. Behav. 320 or 321.
Solution of "live" leadership from student experiences through the use of skills, leadership theory, and disciplines.

606. Organizational Behavior and Administration. (3:3:0) (m) Ritchie, Thompson

610. Management Development: Philosophy and Personal Style. (3:2:2) Daniels, Dyer, Moffitt

625. Advanced Personnel Administration. (3:3:0) Cherrington

640. Organization Theory. (3:3:0) (m) Prerequisite: Org. Behav. 321 or equivalent; or consent of instructor. Ritchie

650. Research Methods in Organizational Diagnosis and Evaluation. (3:3:0) (m) Prerequisite: consent of instructor. Dalton

660R. Advanced Seminar in Organizational Behavior. (2:2:0) Prerequisite: consent of instructor. Dalton

669. Readings in Organizational Behavior. (1-3:3:0)

670. The Dynamics of Organization Change: Interventions and Strategies. (3:3:0) (m) Prerequisite: Org. Behav. 640 or equivalent. Dyer

672. The Consultative Process. (3:3:0) Prerequisites: Org. Behav. 640, 670, or equivalent; or consent of instructor. Moffitt

675. Theory and Method of Laboratory Training. (3:2:2) (m) Prerequisites: Sociol.-Psych. 357; Org. Behav. 640, 670, or equivalent; or consent of instructor. Daniels, Dyer, Moffitt

679. Practicum in Organizational Development. (6-9:2:28) Prerequisite: consent of instructor and advisory committee. Dalton

680. Organizational Behavior Research Report. (3:2:2) Prerequisite: consent of instructor. Dalton

689R. Professional Development Seminar. (1-2:0:4) Prerequisite: consent of instructor and advisory committee.

Personal Development Program

Burton C. Kelly (Director, C-273 ASB)

Although the major emphasis at Brigham Young University is on intellectual and spiritual development, the University is also concerned with the personal and social development of its students. With this in mind, the following list of courses has been compiled as a way of providing information about courses which will assist students with their personal and social development. Many of these courses emphasize learning by doing rather than by traditional educational methods. Most of the courses are taught by faculty from established academic departments and therefore carry academic credit. Further information about this program may be obtained from the Personal Development Center, C-273 ASB.

Courses

☐**Career Education 115. Practical Decision-Making.** (1:1:0) (G-ML)

Systematic consideration of decision-making processes related to lifelong decisions with emphasis on realistic educational/vocational choices.

☐**CDFR 130. Human Social Behavior.** (1:2:0) Prerequisite: freshman standing.
Emphasis is placed on experiential learning in developing an improved ability to develop close relationships and gain a more favorable self concept.

☐**CDFR 360. Achieving Success in Marriage.** (3:3:0) (G-SS)
Consideration of maturity, love, compatability, conflict, specific areas of adjustment in marriage, parent-child relationships, and effective management of family resources.

☐**Clothing and Textiles 110. Selection and Care.** (2:2:1)
Design elements related to apparel selection; principles of wardrobe planning, buying, and care; personal analysis for self-improvement.

☐**Communications 100. Speech Communication.** (3:3:1) (G-HA)
An introduction to theory, philosophy, and practical applications of communicative principles relevant to interpersonal, small-group, and audience settings. Recommended for prospective teachers and those desiring to improve their communicative effectiveness. Required for majors.

General Studies 110. Effective Study and Adjusting to College. (1:3:0)
Course covers such areas as budgeting time, note taking, reading, listening, using the library, taking examinations, and acquiring motivation and concentration.

General Studies 121. College Development Reading. (1:1:1)
Attention is given to speed and comprehension, and to vocabulary as it relates to increased reading efficiency.

☐**Health Sciences 503R. Health Problems Workshop.** (1-3:Arr.:Arr. ea.)
Current problems in school and community health.

Personal Development Center. Interpersonal Communication. (0:0:2)
A practical, experimental course conducted on a small group basis, designed to develop interpersonal skills and train group leaders. Includes the communication process, expression of needs and feelings, active listening, influences of varying personal motivation systems, and interpersonal problem solving.

Personal Development Center. Personal and Social Development. (0:0:2)
A course designed to enhance understanding of self and others and to improve skills in such areas as dating, interpersonal communication, recreation, social conversation, poise, dress, and manners.

Personal Development Center. Educational and Vocational Development. (0:0:2)
A practical program designed to help students obtain the knowledge and experience important in making educational-vocational plans. Students will have an opportunity to learn more about their own aptitudes, interests, and abilities as well as educational and vocational opportunities.

Personal Development Center. Training for Lay Counselors. (0:0:2)
This course is designed to provide basic training in counseling techniques for leaders or persons whose responsibility or interest is to assist students.

☐**Physical Education 176. Activities for Fitness.** (½:0:2-3)

☐**Physical Education 180. Social Dance.** (½:0:2-3)

☐**Physical Education 192. Outing Activities.** (½:0:3-5)
Selected seasonal activities.

☐**Psychology 240. Personal and Social Adjustment.** (3:2:1)
Study of the prevention and amelioration of mental and personal difficulties.

☐**Sociology-Psychology 357. Interpersonal Growth and Group Processes.** (3:1:4) Prerequisite: Psych. 111 or Sociol. 111.
Each student shares responsibility for the building and systematic study of processes which facilitate more effective interpersonal relationships and group functioning.

☐**Recreation Education 123. Introduction to Outdoor Recreation.** (1:0:3)
Participation in a variety of outdoor activities that may be included in a camp program.

☐**Recreation Education 371. Family Recreation.** (2:2:0)
Social activities for small groups and families.

☐**Recreation Education 387. Planning for Social Recreation.** (2:2:0)
Leadership skills for directing large groups in a social setting.

☐**Religious Instruction 231, 232. The Gospel in Principle and Practice.** (2:2:0 ea.)
A consideration of the basic principles of the gospel of Jesus Christ in the light of the practical needs and problems of today's youth.

☐**Youth Leadership 480. Outdoor Survival.** (3-5:5 per week/3 weeks: 70 per week/3 weeks)
A living experience course in physical and emotional stress situations designed to produce interpersonal commitments. Special fee required.

Philosophy

Professors: Madsen, Riddle, Yarn.
Associate Professors: Carter, Rasmussen, Reynolds (Chairman, 30 JSB), Werner.
Assistant Professor: Packard.
Instructor: Paulsen.

The philosophy courses listed below have been carefully selected and structured to offer the following services:

General education. Most philosophy courses fill general education groups in mathematics-statistics-logic or humanities.

Thinking Skills. Most philosophy courses deliberately foster both creative and critical thinking skills. Opportunities for carefully supervised writing are frequently emphasized. Phil. 105 focuses exclusively on skills development.

Preprofessional and pregraduate training. A concentration in philosophy is often recommended for prelegal and other pregraduate programs. Students interested in this type of graduate school preparation should consult with the philosophy department.

No prerequisites. Students from other fields will find adequate orientation in each undergraduate course. (Phil. 305 excepted).

Minor

An undergraduate minor may be completed by taking any five of the following courses (Phil. 105 excepted).

Courses

105. Evaluating Arguments and Evidence. (3:2:1)
Development of basic intellectual skills required in any academic endeavor, including systematic techniques for the evaluation of evidence and assumptions. Oriented to various disciplines.

110. Foundations of Philosophical Thought. (3:3:0) (G-HA m)
Development of philosophical skills through supervised analysis of readings in such philosophical topics as reason, knowledge, metaphysics, ethics, politics, and religion.

☐**Honors 204R. Philosophy.** (3-5:3-5:0)

205. Logic and Language. (3:3:0) (G-ML m)
Elements of formal logic, the forms of reasoning and the structure of language.

211. Theory and Knowledge. (3:3:0) (G-HA m)
Examination of the sources, structure, and claims of such kinds of human knowledge as intuitive, perceptual, reasoned, scientific, and religious knowledge.

212. Metaphysics. (3:3:0) (G-HA m)
Examination of possible descriptions of the ultimate nature of reality, with special attention to change, causation, time, space, matter, existence, individuals, nature, and divinity.

213. Ethics. (3:3:0) (G-HA m)
Examination of the nature and justification of moral standards, beliefs, and decisions.

221. Ancient and Medieval Origins of Western Philosophy. (3:3:0) (G-HA m)
Thematic examination of the early development of Western philosophy through contributions from Greek, Roman, Arab, Jewish, and Christian sources (600 B.C.—A.D. 1500).

222. The Emergence of Modern Philosophy. (3:3:0) (G-HA m)
Thematic examination of the birth and development of modern Western philosophy through contributions of continental, British, and American philosophers.

305. Intermediate Logic. (3:3:0) (G-ML m)
Natural deduction, the paradoxes, reduction of arithmetic to logic, Godel's proofs. Special attention is given to philosophical issues connected with these formal topics.

311. Philosophy of Language. (3:3:0) (G-HA m)
Theories of meaning; interrelation of words with their senses, their referents, and their language and its users; actions that can be performed using language.

312. Philosophy of Mind. (3:3:0) (G-HA m)
Philosophical examination of selected problems such as the relationship of mind and brain, the self and self-knowledge, and human action and free agency.

315. Philosophy of Religion. (3:3:0) (G-HA m)
Analysis of problems in religion, including existence and nature of God, alternatives to theism, God's foreknowledge and man's free will, immortality, and religious experience and language.

352. Aesthetics. (3:3:0) (G-HA m)
Philosophical examination of man's experience of beauty in nature, literature, and the fine arts, with special emphasis upon the relationship between beauty and truth.

354. Philosophy of the Natural Sciences. (3:3:0) (m)
Analysis of induction; assumptions underlying scientific inquiry; the structure of scientific explanation; mechanism; teleology; and the nature of scientific facts, laws, and theories.

355. Philosophy of the Behavioral and Social Sciences. (3:3:0) (m)
Analysis of: assumptions underlying the theories and methods of social science; explanation in sociology, psychology, and history; models of man; and free will and determinism.

371R. Topics in Philosophy. (2-5:2-5:0 ea.) (G-HA m)
Intensive analysis of a selected problem in philosophy, as announced each semester in the class schedule.

372R. Figures in Philosophy. (2-5:2-5:0 ea.) (G-HA m)
Intensive reading of the works of a major philosopher, as announced each semester in the class schedule.

373R. Historical Movements in Philosophy. (2-5:2-5:0 ea.) (G-HA m)
Study of a particular movement or school in philosophy, as announced each semester in the class schedule (e.g., existentialism, positivism, British empiricism, pragmatism, Marxism, utilitarianism).

448R. Readings in Philosophy. (1-4:1-4:0 ea.)

501R. Graduate Seminar. (2-5:2-5:0)
Intensive analysis of a selected topic, figure, or movement in philosophy, as announced each semester in the class schedule.

505. Logic and the Philosophy of Math. (4:3:0) (G-ML m) Prerequisite: Phil. 205 or consent of instructor.
Philosophical issues in logic, including: formal theories and definitions, limitations of the axiomatic method, and logic and set theory in the foundations of mathematics.

648R. Directed Readings in Philosophy. (1-4:1-4:0 ea.)

Physical Education

Professors: Allsen, Bangerter, Call, Hartvigsen, Holbrook, Jarman, C. Jensen, Roundy (Chairman—Men, 270 SFH).
Associate Professors: Fisher, Francis, Hirst, Jacobson (Chairman—Women, 296 RB), M. Jensen, Johnson, Jones, McGown, Robison, Watts, Wallace.
Assistant Professors: S. Allen, Barker, Bestor, Cryer, Edwards, Harrison, Hawkes, Leishman, Lewis, Lyman, Michaelis, Millet, Moe, Morganegg, Rasmus, Tucker, Valentine, Vickers, Winterton, Witbeck.
Instructors: D. Allen, Bunker, Burton, Chamberlain, Davis, Durrant, Felt, Fiat, Fredrick, Helm, Herbut, Hyatt, Kimball, Kragthorpe, Olsen, Painter, Potter, Ramage, Roberson, Silvester, Whitingham.

The Physical Education Departments offer programs of instruction for (1) general education, (2) undergraduate professional preparation, and (3) graduate professional preparation.

1. **General Education.** This program is designed to help each student live a healthy and productive life through correct participation in dance, exercise, and sports.

   Each student is required to complete 2 hours (four courses in the 100-199 series) of physical education credit. Students should enroll in one of these courses each semester of their freshman and sophomore years.

   A large variety of activity courses is available. Participation in these courses provides students with increased sports knowledge, organic development, neuromuscular skill, and social contact in group situations. Most of the activities have great carry-over value in later life.

   Exceptions: One hour of physical education credit is awarded for successful completion of two years of on-campus ROTC Leadership Laboratory courses.

   Any student desiring exemption from physical education for medical reasons must obtain an excuse from the McDonald Student Health Center and present it to the chairman of the physical education department. Adaptive physical education courses are held each semester for handicapped students. Students with handicaps are encouraged to contact the department for special counseling.

   Locker fee: All students are required to pay $1 rental fee for a locker and lock.
2. **Undergraduate Professional Preparation.** These programs complete requirements for the B.A. or B.S.

degree and secondary and elementary teacher certification. (See relevant information below.)

3. **Graduate Professional Preparation.** These programs complete requirements for the M.A., M.S., or Ed.D. degree in physical education. Consult the **Graduate School Catalog** for complete information.

Undergraduate Major Programs

The undergraduate curriculum is organized into the following tracks: (1) athletic training, (2) dance, (3) general, (4) scientific, (5) prephysical therapy, (6) preoccupational therapy, (7) special education, (8) teacher certification for secondary and elementary schools.

These tracks provide students with a great deal of flexibility for professional preparation. Students should seek consultation with an adviser to design their educational programs. Program requirement sheets, including recommended general education courses, are available at the Physical Education Advisement Center (205 Richards Building). In addition to the requirements specified for each track, all majors must qualify in the following:

1. One-and-a-half-Mile Run
   All majors are required to qualify in the "good" or "excellent" category of the one-and-a-half mile run. This test must be passed during the semester they plan to graduate.
2. Body Composition
   All majors are required to maintain the following body composition as measured by the skin-fold caliper test:
   Women: less than 20 percent body fat
   Men: less than 15 percent body fat
3. D and E Grades
   A student cannot qualify for graduation with any D or E credit in his major.

Athletic Training

A student must (1) complete requirements for teacher certification with a major or a minor in either health or physical education and (2) complete academic requirements as listed for athletic training and successfully pass the examination administered by the NATA to be certified as an athletic trainer.

Dance

There are three options available for the student majoring in dance. One option, the dance specialization major, provides a background in all forms of dance with an emphasis in modern dance. This background prepares a student for certification to teach dance in the public schools.

A second option is a dance emphasis major. The chief study in this program is dance with a supporting background of sports activities qualifying a student to receive certification to teach both sports and dance in public schools.

A professional dance major is also offered. This course of study does not grant certification but is designed for the student who wishes to perform professionally in modern, ballet, folk, or social dance or to teach in a private studio. This major is flexible enough to allow a student to concentrate his efforts in a specific area.

General

This program is designed for the student who wishes to secure a liberal education with an emphasis in physical education.

Scientific

This program provides the student with a strong foundation for graduate work.

Prephysical Therapy

Upon completion of the four-year preprofessional program for physical therapy, the student graduates with a B.S. degree with a major in physical education (prephysical therapy emphasis). The student is then eligible to enter an approved school offering certificate or master's degree programs. The length of physical therapy programs is approximately 14 months for a certificate and two years for a master's degree.

A student transferring into prephysical therapy must have a cumulative GPA of 3.0 or better. If a student is to remain competitive for acceptance into physical therapy school, he should realistically maintain a 3.5 or better GPA.

Two-Year Preparation. Upon completion of the two-year preprofessional program for physical therapy, a student is eligible to enter one of a number of approved schools offering a bachelor's degree in physical therapy. The length of the course is two years plus clinical affiliations.

Preoccupational Therapy

Upon completion of the preprofessional program for occupational therapy, a preoccupational therapy student graduates with a B.S. degree in physical education (preoccupational therapy emphasis). A student is then eligible to enter an approved school offering a certificate or master's degree program. A student may also elect to complete the first two years of this program and transfer to another school offering the Bachelor of Science degree in occupational therapy.

A student transferring into preoccupational therapy must have a cumulative GPA of 3.0 or better. If a student is to remain competitive for acceptance into an occupational therapy school, he should realistically maintain a 3.5 or better GPA.

Special Education

A composite major will take 38 hours in a core program, from 10 to 11 hours in physical education skill and sports fundamental courses, and from 15 to 17 hours in a specialty in special education. The student will also complete all of the courses for secondary education certification.

Teacher Certification

Secondary. Students who desire to prepare themselves for employment in secondary schools have three options available: (1) dance specialization, (2) dance and sports combination, (3) sports emphasis. Information relative to these major offerings and to available minors is listed in the Department of Education section of this catalog.

Each student will be responsible for meeting all course requirements for the major and all requirements for secondary certifications. In addition to the courses, each student is required to meet the following skill requirements:

1. Skill Tests—Men

   All majors will be required to pass a skills test in ten of the following thirteen activities. It is recommended that this requirement be met prior to student teaching.

   Archery
   Badminton
   Baseball
   Basketball
   Football
   Golf
   Gymnastics
   Soccer
   Swimming
   Tennis
   Track and field
   Volleyball
   Wrestling

   Membership on an intercollagiate or extramural team (including bowling) will be accepted as demonstration of skill in that activity. Rugby team members can substitute this activity for football. Water polo, swimming, or diving team membership will fulfill the swimming requirement.

2. Exemption Tests—Men

   It is possible to have the requirement for the sports fundamental classes waived by passing a special examination. This consists of skills and techniques tests. A special fee will be charged.

3. Candidacy Tests—Women

   A series of tests is administered to all prospective majors and minors to determine the skill proficiency of each student. Performance on these tests will determine whether a student must take the 100-numbered activity courses in physical education or if they are eligible to register for the 200-numbered skills and technique courses.

Elementary. A composite major of elementary education and physical education is available for students who wish to specialize in physical education at the elementary school level. The student must complete the standard elementary education teaching certificate and a 23-credit physical education requirement. The student should obtain a cycle sheet listing sequence of courses from the Physical Education Advisement Center (205 Richards Building).

The academic support area requiring 10 credit hours in physical education is available for elementary education majors. Refer to the Department of Elementary Education section of this catalog for course listings.

Undergraduate Minor Programs

Minor programs are available in each of the following areas. Refer to the Department of Education section of the catalog for course listings.

1. Dance Specialty—secondary certification
2. Sports—secondary certification
3. Coaching—secondary certification
4. Academic Specialty—elementary certification

Courses

100R. Intercollegiate Athletics. (½:2:10½)

101. Cycling. (½:0:2)
Basic knowledge and skills in cycling and bike maintenance.

102. Orienteering. (½:0:2)
Fundamental theory and techniques of sport orienteering.

103. Skill Analysis and Application. (½:0:3) Hirst
Instruction and drill in basic skills.

104. Recreational Sports. (½:0:2-3)

108. Precision Marching, Beginning. (½:0:3) Hyatt

109. Precision Marching, Intermediate. (½:0:3) Prerequisite: P.E. 108 and consent of instructor. Hyatt

110. Fencing, Beginning. (½:0:2-3) DeHoyos

113. Wrestling, Beginning. (½:0:2) Davis

114. Wrestling, Intermediate. (½:0:2) Prerequisite: P.E. 113 or equivalent. Davis

115. Squash, Beginning. (½:0:2-3)

117. Raquetball, Beginning. (½:0:2-3)

119. Handball, Beginning. (½:0:2-3)

121. Track and Field, Beginning. (½:0:2) James, Robison

123. Badminton, Beginning. (½:0:2) Valentine

124. Badminton, Intermediate. (½:0:2-3) Harrison

126. Archery, Beginning. (½:0:2-3) Harrison

127. Archery, Intermediate. (½:0:2-3) Prerequisite: P.E. 126 or equivalent. Harrison

128. Bowling, Beginning. (½:0:2) Fee. Dixon, Valentine

130. (P.E.-An. Sci.) Beginning Equitation. (½:0:2) Bunker, Pace
Instruction in the principles of Western Pleasure Equitation. Grooming and handling of horses, with limited emphasis placed upon feeding and management.

131. Golf, Beginning. (½:0:2) Tucker

132. Golf, Intermediate. (½:0:2) Prerequisite: P.E. 131 or equivalent. Tucker

133. Tennis, Beginning. (½:0:2) Valentine

134. Tennis, Intermediate. (½:0:2) Prerequisite: P.E. 133 or equivalent. Valentine

135. Rugby, Beginning. (½:0:2-3) Seggar

136. Rugby, Intermediate. (½:3:1½) Prerequisite: P.E. 135. Seggar
Offered 1976 and alternate years.

140. Basketball, Beginning. (½:0:2) Michaelis, Witbeck

141. Basketball, Intermediate. (½:0:2) Prerequisite: P.E. 140 or equivalent.

144. Volleyball, Beginning. (½:0:2) Michaelis

145. Volleyball, Intermediate. (½:0:2-3)

147. Soccer, Beginning. (½:0:2-3)

148. Soccer, Intermediate. (½:0:2-3)

152. Softball. (½:0:2-3) Michaelis

158. International Ballroom Dance, Beginning—Latin and American. (½:0:2) Lyman
Latin and American international style ballroom dance at Bronze level.

159. International Ballroom Dance, Beginning—Modern. (½:0:2) Lyman
Modern international style ballroom dance at the Bronze level.

160. Swimming, Beginning. (½:0:2-3) Hirst, Wallace

161. Swimming, Intermediate. (½:0:2-3) Prerequisite: P.E. 160. Cryer, Wallace

162. Synchronized Swimming, Beginning. (½:0:2-3) Vickers

163. Synchronized Swimming, Intermediate. (½:0:2-3) Prerequisite: P.E. 162. Vickers

164. Water Polo. (½:0:2-3) Cryer

165. SCUBA Diving, Beginning. (½:0:2-3) Prerequisite: P.E. 161 or equivalent. Cryer

166. Canoeing. (½:0:4) Prerequisite: pass swimming test. Skinner

168. Diving, Beginning. (½:0:2-3) Wallace

169R. Swimming for the Handicapped. (½:0:2 ea.) Chamberlain

172. Rhythmic Gymnastics. (½:0:2-3) Rowland

173. Gymnastics, Beginning. (½:0:2) Morgenegg, Wallace

174. Gymnastics, Intermediate. (½:0:2) Prerequisite: P.E. 173 or equivalent. Morgenegg, Wallace

175R. Adaptive Physical Education. (½:0:2) Prerequisite: consent of instructor or referral by McDonald Health Center.

176. Activities for Fitness. (½:0:2-3) Allsen, Hirst

178. Progressive Weight Training, Beginning. (½:0:2-3) Silvester

179. Jogging. (½:0:2) Johnson

180. American Social Dance, Beginning. (½:0:2-3) Home Study also. A. Heaton
Fox-trot, waltz, lindy, cha cha.

181. Folk Dance. (½:0:2-3) M. Jensen

182. Square Dance. (½:0:2-3) M. Jensen

183. Specialty Dance-Theatre. (½:0:2-3) Winterton

184. Rhythm and Dance. (½:0:2-3) S. Davis, Rasmus
Rhythm and dance for elementary school teachers.

185. Ballet Technique, Beginning. (½:0:2-3) Allen

186. Ballet Technique, Intermediate. (½:0:2-3) Prerequisite: P.E. 185 or equivalent. Allen

187. Modern..Dance, Beginning. (½:0:2-3) Winterton

188. Modern Dance, Intermediate. (½:0:2-3) Prerequisite: P.E. 187 or equivalent. Hyatt

189. Latin Social Dance, Beginning. (½:0:2-3) Home Study also. A. Heaton
Rumba, cha cha, samba, tango.

190. Recreational Dance. (½:0:2) A. Heaton
Instruction in all forms of recreational dance—social, folk, square, round, and currently popular steps.

191. Weight Training, Intermediate. (½:0:2) Prerequisite: P.E. 178 or consent of instructor. Silvester
Theory and technique of maximal strength development with particular emphasis on "power" and "Olympic" lifts.

192. Outing Activities. (½:0:3-5)
Selected seasonal activities.

194. Skiing—Cross Country. (½:½:1½) Bangerter, Howard, Tucker

195. Skiing, Beginning. (½:0:5) Tucker
First-year skiing for participants of varying skills. Sections formed on the basis of ability, with instruction suited to varying skill levels in fundamentals of skiing. The student furnishes his ski equipment and pays ski tow fees. Fee. (Permission to withdraw with refund restricted.)

196. Skiing, Intermediate. (½:0:5) Tucker
Second-year skiing for participants of varying abilities. Classification for instruction based upon ability. The student furnishes all his ski equipment and pays ski tow fees. Fee. (Permission to withdraw with refund restricted.)

197. Karate, Beginning. (½:0:2) Fishbein, Hega
An introduction to the sport of Karate, stressing fundamental techniques of participation.

198. Judo, Beginning. (½:0:2) Fishbein, Hega
An introduction to the sport of Judo, stressing fundamental techniques of participation.

199. Personal Defense. (½:0:2) Johnson
The fundamental principles, skills, and techniques of personal defense.

200R. Competitive Sports (Women). (½:0:3) Wallace

202. Orientation to Dance Forms. (½:1:1) (m) Winterton

231. Sports Fundamentals—Soccer. (½:0:2) Bunker

232. Sports Fundamentals—Gymnastics, Tumbling. (1:0:3) Johnson, Morgenegg

233. Sports Fundamentals—Archery. (½:0:2) (m) Harrison, Jones

234. Sports Fundamentals—Volleyball. (½:0:2) (m) Fisher, Jarman

235. Sports Fundamentals—Swimming. (1:0:3) Cryer

236. Sports Fundamentals—Tennis. (½:0:2) (m) Jones, Moe, Valentine

237. Sports Fundamentals—Calisthenics, Games, and Relays. (1:0:3) Bunker

238. Sports Fundamentals—Badminton. (½:0:2) Allsen, Millet, Valentine

239. Sports Fundamentals—Weight Training. (½:0:2) (m) Silvester

240. Sports Fundamentals—Golf. (½:0:2) Roundy, Tucker, Vickers

241. Basketball: Skills and Teaching Techniques. (½:0:2-3) Prerequisite: P.E. 103, 140, or equivalent. Michaelis

242. Track and Field: Skills and Teaching Techniques. (½:0:2-3) Prerequisite: P.E. 103, 121, or equivalent Hawkes

243. Gymnastics: Skills and Teaching Techniques. (2:2:4) Wallace

244. Organization and Application of Activities. (½:0:2-3) (m) Jacobson
Indoor and outdoor recreational games; apparatus activities; rope jumping.

245. Volleyball: Skills and Teaching Techniques. (½:0:2-3) Prerequisite: P.E. 103, 144, or equivalent. Michaelis

246. Softball: Skills and Teaching Techniques. (½:0:2-3) Prerequisite: P.E. 103, 152, or equivalent. Michaelis

247. Soccer-Speedball: Skills and Teaching Techniques. (½:0:2-3) Prerequisite: P.E. 103 or equivalent. Hawkes

248. Body Mechanics: Skills and Teaching Techniques. (½:0:2-3) Prerequisite: P.E. 103, 176, or equivalent. Hirst

249. Field Hockey: Skills and Teaching Techniques. (½:0:2-3) (m) Prerequisites: P.E. 103, 149, or equivalent. Lewis

250. Ski Instruction Methods. (1:0:4) Bounous
Instruction course in skiing for those who wish to qualify as student instructors in the ski program.

258. International Ballroom Dance, Intermediate—Latin and American. (1:0:3) Prerequisite: P.E. 158 or equivalent. Lyman
Latin and American international style ballroom dance at the Silver level.

259. International Ballroom Dance, Intermediate—Modern. (1:0:3) Prerequisite: P.E. 159 or equivalent. Lyman
Modern international style ballroom dance at the Silver level.

261. Swimming, Advanced. (1:0:3) Wallace

264. Lifesaving. (1:0:3) Hirst, Wallace

265. Water Safety Instruction. (1:0:3) Hirst, Wallace

268. Diving, Intermediate. (1:0:3) Bestor

279. Folk Dance Teaching Techniques. (1:1:2) M. Jensen

280. Social Dance Teaching Techniques. (1:0:2-3) Prerequisite: P.E. 180. A. Heaton

282. Advanced Square Dance and Calling Techniques. (1:3:0) Prerequisite: P.E. 182. M. Jensen

283. American Social Dance, Advanced. (1:0:2-3) Prerequisite: P.E. 180 or equivalent. A. Heaton

284R. Folk Dance, Advanced. (1:0:2-3) M. Jensen

285. Latin Social Dance, Advanced. (1:0:2-3) Prerequisite: P.E. 189 or equivalent. DeHoyos

287R. Modern Dance Technique, Intermediate. (2:0:6) Prerequisites: P.E. 187, 188. Winterton
Guided exploration in dance techniques leading toward composition.

288R. Modern Dance Technique, Advanced. (2:0:6) Prerequisite: P.E. 287. Winterton
Technique and form for composition.

290R. Ballet Technique, Advanced. (1:0:2-3) Prerequisites: P.E. 185, 186. Allen

291R. Ballet Performance, Beginning. (1:2-3:0) (m) Prerequisite: consent of instructor. Allen

292R. Ballet Performance Intermediate. (1:2-3:0) Prerequisite: consent of instructor. Allen

314. Intramural Sports. (2:2:0) Home Study also. Michaelis, Silvester

330. Principles of Physical Education. (3:3:0) Home Study also. Hawkes, Holbrook, Jarmon, Jones
The principles of physical education and the relationship of physical education to total education.

340. Introduction to Motor Learning. (2:2:1) Prerequisites: P.E. 231, 240; Stat. 221 or P.E. 461. Johnson, McGown

341. General Kinesiology. (3:3:0) Prerequisites: Zool. 261, 262, or equivalent. Bangerter, Call, Johnson

344. Physiology of Activity. (3:3:0) Prerequisites: Zool. 260, 261. Allsen, Fisher, Johnson
A course in applied human anatomy and physiology.

358. International Ballroom Dance, Advanced—Latin and American. (1:0:3) Prerequisite: P.E. 258 or equivalent. Lyman
Latin and American international style ballroom dance at the Gold level.

359. International Ballroom Dance, Advanced—Modern. (1:0:3) Prerequisite: P.E. 259 or equivalent. Lyman
Modern international style ballroom dance at the Gold level.

370. Wrestling Fundamentals and Coaching (Men). (2:1:2) Davis
For physical education majors only. Theory, fundamentals, and techniques of coaching wrestling, including some emphasis on management of meets and tournaments.

371. Football Fundamentals and Coaching. (2:1:2) Home Study also.

372. Basketball Fundamentals and Coaching. (2:1:2) Watts
Theory and fundamentals of offensive and defensive systems.

373. Track and Field Fundamentals and Coaching. (2:1:2) Robison
Theory, fundamentals, and techniques of track-and-field athletics.

374. Baseball Fundamentals and Coaching. (2:1:2) Tuckett
Theory, fundementals, and techniques of baseball.

375. Physical Education for Teachers of Primary Grades. (2:0:4) Prerequisites: P.E. 103, 184, or equivalent. Chamberlain, Jacobson, Rasmus
Analysis and development of skills and application of methods in teaching K-3.

376. Physical Education for Teachers of Intermediate Grades. (2:0:4) Prerequisites: P.E. 103, 184, or equivalent. Barker, Hirst, Michaelis
Analysis and development of skills and application of methods in teaching grades 4-6.

377. Secondary Teaching Methods and Procedures. (3:3:1) Prerequisite: Ed. 301. Jarmon, Moe
See Ed. 377 for description.

378. Physical Education Practicum. (1:0:2-3) Prerequisites: Ed. 301, P.E. 377, and major approval card for women. Allsen, Valentine

379. Physical Education for Special Education Teachers. (2:2:2) Prerequisites: P.E. 103, 184. Hirst, Michaelis

380. Modern Dance Production. (2:3:0) Prerequisites: P.E. 287, 288. Winterton

381R. Modern Dance Choreography. (1:3:0 ea.) Winterton

382R. Modern Dance Technical Skills, Beginning. (1:2-3:0) (m) Prerequisite: 6 hours of credit or equivalent experience in modern dance.

383. Rhythm Analysis for Dance. (1:3:0)
The analysis of rhythm, its relationship to movement, and its form of sound and musical accompaniment.

384R. Folk Dance Performance Techniques. (1:0:3) Prerequisites: P.E. 181, 182, 284. M. Jensen

385R. Modern Dance Technical Skills, Intermediate. (1:2-3:0) Prerequisite: 7 hours of credit or equivalent experience in modern dance.

386R. International Ballroom Dance Team. (1:0:3) Prerequisite: P.E. 358 and 359 or equivalent.

387. Modern Dance Composition, Intermediate. (1:0:4) Prerequisites: P.E. 187, 188.
Fundamental composition forms, with emphasis on locomotor development and spatial elements.

388. Teaching Methods in Modern Dance. (1:0:4) Prerequisites: P.E. 187, 188.
Emphasis on planning, teaching, and evaluating lessons.

389. Modern Dance Improvisation. (1:0:4)

406. Sports Officiating (Men). (2:2:1) Bunker
Rules, techniques, problems and procedures in officiating football, basketball, and other team and individual sports. Suggested for those who wish to officiate in the intramural program.

407. Sports Officiating (Women). (2:1:3) Wallace
Rules, techniques, problems and procedures in officiating softball, volleyball, and basketball. OSA national examinations given.

411. Problems in Interschool Athletics. (2:2:0)

446. Adaptive and Corrective Physical Education. (3:3:0) Prerequisites: Zool. 260, 261; P.E. 341, 344. Francis
Fundamentals of body mechanics and therapeutic exercise, coupled with kinesiological principles in preparing the student in the detection and correction of basic neuromusculoskeletal anomalies.

449. Diagnosis and Management of Athletic Injuries. (3:3:1) Prerequisite: P.E. 446. Call, Francis
Designed for prospective coaches, trainers, health and physical educators, physical therapists, and premedical students: to aid in the recognition, evaluation, and care of athletic injuries. Techniques in taping, prevention, and rehabilitation of injuries.

461. Tests and Measurements for Women. (3:3:0) Hirst
Elementary statistical methods and tests as they apply to the teaching of physical education.

463. Techniques of Coaching and Officiating Competitive Swimming. (1:2:3) Prerequisite: intermediate swimming skills.
Techniques of coaching competitive swimming; analysis of strokes, starts, turns, and legalities of each; officiating skills. (DGWS ratings may be obtained.)

464. Introduction to Tests in Health and Physical Education. (2:2:0) Allsen, Jones, Roundy
Introduction to the history and development of measurement in health and physical education. Description of important tests, with emphasis on techniques of test administration and application of results.

468R. Prephysical Therapy Practicum. (v.1-6:0:2-20) Prerequisite: P.E. 446. Francis
Practical field experience for physical and recreation therapy students. Before credit can be given in this class

a student will be required to complete 50 hours of volunteer service in an approved institution of rehabilitation during his junior and senior years.

472R. Team Sports Fundamentals and Coaching. (2:2:2) Prerequisite: P.E. 241, 245, or equivalent. Michaelis
Fundamentals, theory, and techniques of coaching basketball and volleyball.

474R. Coaching and Judging Women's Gymnastics. (2:2:2) Prerequisite: P.E. 174, 243, or equivalent. Wallace
Techniques of coaching and judging women's gymnastics and the organization procedures for conducting competitive meets.

478. Elementary Student Teaching. (4:1:7) Prerequisite: completion of courses in composite major. Rasmus

479. Secondary Student Teaching. (8:1:15) Hawkes, Jarman, Moe, Valentine

480. Dance Accompaniment. (1:2:1) Prerequisite: P.E. 383. Winterton

481. Children's Dance Methods. (1:2:1) (m) Prerequisites: P.E. 388, 480. Winterton

486. History and Philosophy of Dance. (3:3:0) Winterton
History and philosophies of dance and dancers and the significance of these ideas in view of their effect on modern educational and cultural uses of dance.

490. Seminar in Dance. (2:1:2) Winterton

547. Advanced Corrective Physical Education. (2:1:2) Prerequisite: P.E. 446. Call
Techniques of postural evaluation, muscle testing, therapeutic exercises, and relaxation; extent and limitations of the physical educator's responsibility for recognition of divergent conditions and referral procedures.

570. Teaching Progression in Individual Sports. (2:4:0) Jones, Valentine
Materials, methods, and teaching progression in individual sports, including archery, badminton, bowling, tennis, or golf.

571. Teaching Progression in Team Sports. (2:2:2) Jones, Michaelis
Materials, methods, and teaching progression in team sports.

575. Materials and Methods for Secondary Teachers. (2:1:2) Jones

576R. Workshop in Fitness and Sport. (1-4:Arr.:Arr.) Prerequisite: Undergraduate major in physical education or equivalent. Jacobson, Roundy
Designed to give physical education teachers an experience in fitness and sport that will upgrade their skill, knowledge, and competence.

587R. Modern Dance Composition, Advanced. (1:0:4) (m)
Advanced principles of composition, including elements of space, motion, energy, and time.

588R. Modern Dance Performing Techniques. (2:0:6) (m) Prerequisites: P.E. 382, 385.
Advanced techniques, with combinations of movement and pattern to further dance as a performing art.

589R. Workshop in Modern Dance. (1-2:Arr.:0 ea.)

601. Problems in Physical Education. (2:3:0) Allsen, Bangerter

610. Philosophy of Physical Education. (2:2:0) Holbrook

631. Problems in Athletic Conditioning. (2:2:4) Allsen, Jensen

633. Physical Education for the Mentally Retarded. (2:2:0) Prerequisite: bachelor's degree in physical education. Call

635. Research Design in Physical Education. (2:2:1) Prerequisite: P.E. 464 or equivalent.

640. Curriculum Construction in Physical Education. (2:2:0) Johnson

642. Mechanical Analysis of Activities. (2:2:0) Bangerter

645. Functional Anatomy and Kinesiology. (2:2:0) Prerequisites: Zool. 105, 260, 261; P.E. 341, 344, 446, 449, or equivalent. Call

646. Laboratory Methods and Procedures. (2:2:0) Prerequisites: P.E. 341 and 344 and concurrent enrollment in 674. Fisher

647. Advanced Physiology of Activity. (2:2:0) Prerequisites: P.E. 341, 344. Fisher

648. Theory of Motor Learning. (2:2:0) Johnson, McGown

661. Supervision in Physical Education. (2:2:0) Jarman

662. Administration and Public Relations. (3:3:0) Hartvigsen

663. Planning Facilities. (2:2:0) Jarman

670. History of Physical Education. (3:3:0) Holbrook

671. Psycho-Sociological Implication of Sport. (2:2:0) Prerequisites: graduate standing; Psych. 111, 450, or equivalent. Allsen

673. Physical Education in the Elementary School. (2:3:0) Rasmus

674R. Workshop in Physical Education in the Elementary Schools. (1:combination of 40 hrs. ea.) Rasmus, Jacobson

691. Seminar. (1:2:0) Prerequisite: provisional acceptance in the Ed.D. program. Harrison

692. Research Methods in Physical Education. (3:3:0) Roundy

694. Individual Study. (2:1:1) Holbrook

698. Field Project, Master's Degree. (1-6:0:Arr.) Roundy

699. Thesis for Master's Degree. (6-9:Arr.:Arr.) Roundy

797R. Individual Research in Physical Education. (2-6:Arr.:Arr. ea.) Prerequisites: undergraduate major in physical education; matriculation for graduate study in the department. Roundy

799. Dissertation for the Ed.D. Degree. (12:Arr.:Arr.) Roundy

Physical Science

Professors: Compton (Coordinator, 673 WIDB), Gee, Peterson.
Associate Professors: Wickes, Wight.
Assistant Professor: Chatterly.

An interdisciplinary area only, serving chemistry, earth science, geology, mathematics, and physics. See departmental listings and Department of Secondary Education and Foundations for degree and teacher certification requirements.

Courses

377. Secondary Teaching Curriculum and Methods. (3:3:1) Prerequisite: Ed. 301.
Designed for mathematics and physical science majors in education. For course description and fees, see Ed. 377.

479. Secondary Student Teaching. (5-8:1:20-40) Prerequisite: Phys. Sci. 377 or equivalent.
For course description and fees, see Ed. 479.

☐**Education 493R. Readings.** (1-2:1-2:0 ea.)

Physics and Astronomy

Professors: Ballif, Barnett, Bass, Decker, Dibble, Dixon, Dudley, Eastmond, Fletcher (emeritus), A. L. Gardner, J. H. Gardner, Hales (emeritus), Hansen, Harrison (Chairman, 296 ESC), A. Hill, M. Hill, Jones, Larson, McNamara, Merrill, Nelson, Vanfleet.
Associate Professors: Evenson, Jensen, Mason, Miller, Palmer, Rasband, Strong, Woodford.
Assistant Professors: Christensen, Geertsen (emeritus), Hatch, Knight, Nielsen.

General

The Department of Physics and Astronomy seeks to help students of all disciplines to become more fully aware of our physical environment, to recognize the action of universal laws in that environment, to realize that man is capable of comprehending these laws, and to appreciate the limitations as well as the strengths of science.

The curriculum of the Department of Physics and Astronomy is designed to provide (1) a perspective of science and an introduction to the role of physics in the human quest for understanding; (2) training for students who intend to pursue graduate work in physics or astronomy; (3) preparation for students who intend to enter industrial or governmental service as physicists or astronomers; (4) undergraduate training for students who will pursue graduate work in business (e.g., MBA) and law; (5) a fundamental background for other physical sciences and engineering; (6) the physics fundamentals required by the biological science, premedical, predental, and nursing programs; and (7) training in the subject matter of physics for prospective teachers of the physical sciences.

Sequence for Science, Professional, and Technical Students. Students who expect to major in physics, other physical sciences, or engineering should begin their study of physics with Physics 121. Those who expect to study medicine or dentistry, or to major in the biological sciences may elect Physics 201 and 202. Students who desire an elementary course in applied physics should take Physics 105 and 106.

Courses for Nonscience Students. Nonscience students may profit from Physics 100, 110, or 300, which emphasize the known fundamental principles of our physical environment and also the role of physics as one of the humanities as well as a science; or Physics 127, 129, 130, 137, 167, or 177, which are organized with the object of giving the student an understanding of more specialized areas of his physical environment, while at the same time bringing him into contact with the foundations of physics.

Prospective Teachers. Students expecting to use physics as a teaching major or minor or as part of a composite teaching major should refer to the part of this catalog concerned with the subject-matter preparation of secondary school teachers. They are also invited to consider the MA-3 program beginning in the junior year, which is described below.

A limited number of scholarships, including the John Einar Anderson scholarships, are available to qualified physics majors.

Majors in Physics

The Department of Physics and Astronomy offers programs leading to the following degrees: Bachelor of Science (B.S.), Bachelor of Arts (B.A.), Master of Science (M.S.), Master of Arts (M.A.), Doctor of Philosophy (Ph.D.). The B.S. degree is designed for those preparing for graduate work and/or employment in the sciences and engineering. The B.A. and the M.A. degree programs are liberal-arts programs especially suitable for those who plan careers in secondary or junior college teaching, business administration, medicine, law, or other nonscience fields.

Requirements for the B.S. Degree

For a student to graduate with the Bachelor of Science degree, he must successfully complete (C- grade or better) the following courses: Physics 121, 122, 214, 221, 222, 316, 317 (or Math. 244), 318 (or Math. 436), 321, 322, 341, 342, 386, 387; Math. 112, 113, 214 (or 141, 142, 243), and 434; and 6 or more credit hours selected from the 300, 400, or 500 series physics courses. Chem. 111 or 105 is strongly recommended for all physics majors.

Requirements for the B.A. Degree

For the Bachelor of Arts degree, the student must successfully complete the following courses: Physics 121, 122, 214, 221, 222, 300, 316, 317, 321, 322 (341 and 386 may be substituted for 322); Math. 112, 113, 214, 434 (or other equivalents); and a second approved 14-hour field of concentration outside the department. No more than four hours of D grade (D-, D, D+) will be allowed toward filling the major requirement. Approval for the 14-hour field of concentration should normally be obtained from the Physics and Astronomy Department chairman by the beginning of the junior year.

Physics-Astronomy Option

Physics majors whose primary interest is astronomy or astrophysics must take the courses listed under the requirements for a physics major. It is recommended that these students take Physics 129 and 130 during the freshman year. They should also include Physics 527, 528 as part of their program in the senior year.

Suggested Courses for Physics Majors

Language. The student is strongly urged to achieve competence in a foreign language (German, Russian, or French) during his undergraduate career, especially if he intends to go to graduate school. A summer program in French, German, or Russian would be highly advantageous.

Mathematics. Students in physics should take mathematics beginning the first semester of the freshman year. The initial course is determined by the results of the mathematics placement examination, administered by the Department of Mathematics, which should be taken prior to registration. Physics majors who are especially well prepared in mathematics should begin with Math. 141; those with average preparation (sufficient to begin calculus) should begin with Math. 112; those whose preparation is inadequate, as indicated by the placement exam, will need to begin with Math. 111 or some modules of Math. 110. In the latter case the student might wish to enter the University during the Summer Term and bring his mathematics preparation to the point where he can take Math. 112 or 141 concurrently with Physics 121 during the Fall Semester.

Graduate Programs. For details concerning the program of graduate study leading to the M.S., M.A., and Ph.D. degrees in physics, students should consult the **Graduate School Catalog.**

Course Planning

Suggested B.S. Programs. Considerable flexibility is available to the student in planning his program for the degrees in physics. Generally a core of four courses plus religion and physical education is desirable each semester, with an appropriately reduced load for Spring or Summer terms when attended.

A sample program which would provide the B.S. student with excellent preparation for graduate school appears below. Detailed programs for other options are available from the Department of Physics and Astronomy. Those who plan to take the Graduate Record Examination for admission to the Ph.D. program at BYU or to a graduate school elsewhere should be sure to include Physics 551 and 552 in their programs even though these courses are not required for the B.S. degree. Physics and mathematics courses required for graduation appear in bold face. Students interested in the physics-astronomy option see above.

First Year	F	W
Religion	2	2
Physics **121, 122**	3	3
Math. **112 (or 141), 113 (or 142)**	4	4
Physical education	½	
Chem. 111, 112	3	3
Chem. 113		3
Health 130		2
Engl. 111	3	
	15½	17

Second Year	F	W
Religion	2	2
Physics **221, 222**	3	3
Physics **214, 316**	1	1
Physics **317**		3
Comput. Sci. 131	3	
Math. **214 (or 243)**	3	
Physical education	½	½
Hist. 170	3	
Humanities		3
Biological science		3
	15½	15½

Third Year	F	W
Religion	2	2
Physics **318, 386**	3	2
Physics **321, 322**	4	4
Physics **341**		3
Math. **434**	3	
Physical education	½	
Social science		3
Biological science		3
English	3	
	15½	17

Fourth Year	F	W
Religion	1	1
Physics **342**	3	
Physics **387**	2	
Physics **431, 471**	3	3
Physics 551, 552	3	3
Physics 591R	1	1
Humanities		3
Social science	3	
Electives		5
	16	16

The B.S. degree can be completed in three years if the student attends Spring Term each year and Summer Term one of the years. A sample program appears below.

First Year	(Su)*	F	W	Sp	Su
Religion		2	2	2	
Engl. 111		3			
Hist. 170				3	
Health 130			2		
Physical education		½		½	
Chem. 111, 112		3	3		
Chem. 113			3		
Math. (111), **112, 113, 214**	(5)	4	4	3	
Physics **121, 122**		3	3		
Electives and					8
Language	(3)				
	(8)	15½	17	8½	8

Second Year	F	W	Sp
Religion	2	2	2
English	3		
Physical education	½	½	
Humanities	3		
Social science	3	3	
Biological science		3	
Math. **434**			3
Physics **221, 222**	3	3	
Physics **214, 316**	1	1	
Physics **317, 318**		3	3
	15½	15½	8

Third Year	F	W	Sp
Religion	2		
Humanities	3		
Biological science	3		
Physics **321, 322**	4	4	
Physics **341, 342**		3	3
Physics **386, 387**		2	2
Physics **431, 471, 441**	3	3	4
Physics 591R	1	1	
Electives		3	
	16	16	9

*Summer prior to the first semester of the freshman year, if necessary to take Math. 111.

Four-Year Master's Degree Program. After completing a three-year B.S. program, the student may work toward an M.S. or M.A. degree in the fourth year. Physics 551 and 552 should be taken in the fourth year by all students who are doing or expect to do graduate work in physics. The M.S. may be achieved in one calendar year if the student does not work part-time. He should finish his courses in the two-semester academic year and expect to spend a full summer on his thesis. Students who work oart-time (e.g., as teaching assistants) should usually expect to take an extra semester to finish the M.S. degree. For further details, see the **Graduate School Catalog.**

Applied Physics. Professional opportunities for physicists often occur in areas of applied physics, relating, for example, to energy problems in nuclear, solar, or geothermal power or to medical, biological, optical, or acoustical problems. It is recommended that students interested in any area of applied physics plan a detailed program with an adviser in the Department of Physics and Astronomy as early as possible in their University career. Physics majors whose interest is nuclear engineering physics should consider the following B.S. degree in applied physics.

B.S. Degree in Applied Physics. A B.S. degree in applied physics is offered for those whose interest is nuclear engineering physics. A possible program is outlined below.

Nuclear Power Option

Freshman Year	**Hours**
Physics 121, 122	6
Math. 112, 113	8
English	6
Chem. 111, 112, 113	8
Religion	4
Physical education	1
	33

Sophomore Year	**Hours**
Physics 221, 222, 214, 316, 317	11
Math. 214	3

Religion	4
Econ. 110	3
Comput. Sci. 131	2
Electives (social science and humanities)	5
Health 130 and physical education	3
Hist. 170	3
	34

Junior Year	Hours
Physics 321, 318, 341, 386	12
Mech. Eng. 321, 322, 412, 540	13
Elec. Eng. 301, 302, 303	5
Religion	4
	34

Senior Year	Hours
Physics 551, 552, 555, 557, 497R	12
Electives (biological science and humanities)	9
Chem. Eng. 378, 582, 583	8
Elec. Eng. 531	3
Religion	2
Civ. Eng. 471	3
	37

MS-3 and ME-3 Programs, Beginning in the Junior Year, for Physicists and Engineers. Students who desire to obtain an engineering degree with a strong physics and mathematics emphasis should consider the MS-3 and ME-3 programs, which include a B.S. degree in physics and a master's degree (M.S. or M.E.) in one of the departments of engineering. These programs begin in the junior year and are available to students who have completed the freshman and sophomore foundation courses. (See the first two years of the four-year B.S. program outlined above.) Further information is available from the Department of Physics and Astronomy.

MA-3 Program, Beginning in the Junior Year for Secondary and Junior College Teachers. A student who plans to teach in secondary school or in junior college should consider the B.A. degree. The requirements for this degree are such that the student can complete certification in Utah and obtain the degree by the end of his senior year even though he decides on a physics major relatively late in his college career. He may then continue into an M.A. program to further qualify himself for a teaching career. The MA-3 program leads to the B.A. and M.A. degrees in physics beginning in the junior year. Further details are available from the Department of Physics and Astronomy.

Physics Minor

The standard program for the physics minor is Physics 121, 122, 221, 222, 214, 316.

Courses

100. Fundamentals of Physics. (3:3:0) Home Study also. (G-PS m)
Principles of classical and modern physics as they relate to current concepts of our physical environment.

105. Introductory Physics. (3:4:0) (G-PS, ML m) Prerequisite: completion of or concurrent registration in Math. 105 or 111 or 121. Recommended: concurrent registration in Physics 107.
An applied physics course not requiring calculus. Topics include mechanics, heat, wave motion, sound.

106. Introductory Physics. (3:4:0) (G-PS m) Prerequisite: completion of or concurrent registration in Math. 105, 111, or 121. Recommended concurrent registration in Physics 108.
An applied physics course not requiring calculus. Topics include electricity and magnetism, introduction to atomic and solid state physics, optics.

107. Introductory Physics Laboratory. (1:0:3) (G-PS m) Prerequisite: completion of or concurrent registration in Physics 105.

108. Introductory Physics Laboratory. (1:0:3) (G-PS m) Prerequisite: completion of or concurrent registration in Physics 106.

110. Development of Scientific Thought. (3:3:0) (G-PS, ML m)
A nonmathematical course showing the historical development of some of the important ideas of physics; emphasizing the inductive method of arriving at scientific concepts and showing the relationship of those concepts to other areas of thought.

121, 122. Principles of Physics. (3:4:0 ea.) (G-PS m) Prerequisite: completion of or concurrent registration in Math. 112 or 141.
Mechanics (first semester); electricity and magnetism (second semester). (See 221 for waves, optics, thermal physics.) Primarily for students in science and engineering.

127. Descriptive Astronomy. (3:3:0) Home Study also. (G-PS m)
A nonmathematical presentation of our knowledge of the content and history of the cosmos. Frequent use is made of the observatory and planetarium. Students taking this course may not receive credit for Physics 129, 130. Physics 128 is not a laboratory course for Physics 127.

128. Elementary Astronomy Laboratory. (1:0:2) (G-PS m) Prerequisite: Physics 127 or 129.
A laboratory course designed to give the student firsthand experience in observing and analyzing astronomical phenomena.

129, 130. Introduction to Astronomy. (2:2:0 ea.) (G-PS m) Prerequisite: high school algebra and trigonometry.
A survey of the whole field of astronomy for students primarily interested in the sciences. Students taking this course may not receive credit for Physics 127.

137. Environmental Physics. (3:3:0) Home Study also. (G-PS m)
Introduction to nature, evolution, and perturbation of the environment: weather and climate, energy utilization, dispersion of pollutants, radiation and thermal balance, entropy, etc.

167. Descriptive Acoustics of Music and Speech. (3:3:0) (G-PS m)
An introductory acoustics course, with emphasis on the physical principles underlying the production and perception of music and speech.

177. Physics of Light and Photography. (3:2:3) Home Study also. (G-PS m)
An introductory course with laboratory, with emphasis on the scientific principles related to photography.

201, 202. General Physics. (5:5:3 ea.) (G-PS m) Prerequisite: Math. 109 or equivalent.
A general course with laboratory for students in premedical, predental, and biological science programs. Topics include: mechanics, heat, sound, light, electricity and magnetism, atomic and nuclear physics.

214. Principles of Physics Laboratory. (1:0:3) (G-PS m) Prerequisite: completion of or concurrent registration in Physics 221.

221, 222. Principles of Physics. (3:4:0 ea.) (G-PS m) Prerequisite: Physics 122.
Continuation of Physics 121, 122 sequence. Thermal physics, waves, optics (first semester); special relativity, quantum effects, atomic and nuclear physics (second semester).

300. Philosophical Foundations of Modern Physics. (3:3:0) (G-PS m) Prerequisite: Physics 221 or equivalent.
An examination of the origin, content, and philosophical significance of basic concepts in physics.

316. Atomic and Nuclear Physics Laboratory. (1:0:3) (G-PS m) Prerequisite: completion of or concurrent registration in Physics 222.

317, 318. Elementary Methods in Theoretical Physics. (3:3:0 ea.) (G-PS)
Formal procedures in theoretical physics; applications of linear algebra, vector analysis, complex analysis, Fourier techniques, etc., to the classical equations of physics.

321, 322. Mechanics. (4:4:0 ea.) (G-PS m) Prerequisite: Physics 317.
Newton's laws applied to particles and systems of particles, including rigid bodies. Conservation principles, Lagrange's equations, Hamilton's equations, and special relativity.

341, 342. Electricity and Magnetism. (3:3:0 ea.) (G-PS m) Prerequisite: Physics 317.
Classical theory of electricity and magnetism developed from its experimental foundations. Electrostatics, magnetostatics, currents and their associated fields, circuit theory, and Maxwell's equations.

386. Advanced Experimental Techniques. (2:1:5) (G-PS)
Basic techniques in electrical, optical, thermal, electronics, etc., measurements and instrumentation for contemporary experimental physics.

387. Advanced Physics Laboratory. (2:1:3) (G-PS) Prerequisite: Physics 386 or equivalent.
Application of contemporary methods and instruments to the experimental observation and measurement of physical phenomena.

391, 392. Seminar in Current Physics. (1:1:0 ea.) (G-PS) Prerequisite: consent of instructor.

431. Thermal Physics. (3:3:0) (G-PS m)
Principles of thermodynamics, with introduction to the concepts of kinetic theory and statistical mechanics.

441. Electronics for Physicists. (4:3:3) (G-PS)
Fundamental concepts of electronics and basic circuitry, with emphasis on the tools needed for specialized research in a variety of fields of physics.

471. Optics and Electromagnetic Theory. (3:3:0) (m)
An intermediate treatment of physical and quantum electromagnetic wave phenomena, with introduction to modern topics such as coherent interference, holography, lasers, radiation, etc.

497R. Introduction to Research. (1-3:0:2-6 ea.) (m)

511. Introduction to Theoretical Physics. (3:3:0) Prerequisite: Math 434 or equivalent.
Basic principles of physics, with emphasis on their mathematical formulation. Topics treated vary from year to year.

513R. Special Topics in Contemporary Physics. (1-3:1-3:0 ea.) Prerequisite: consent of instructor.
Course content varies from year to year. Subject matter will generally be related to recent developments in physics.

517, 518. Mathematical Physics. (3:3:0 ea.) Prerequisite: Physics 318 or equivalent.
Topics in modern theoretical physics, including applications of matrix and tensor analysis and linear differential and integral operators.

527, 528. Introduction to Astrophysics. (3:3:0 ea.) Prerequisite: consent of instructor.
Fundamental principles and observational techniques of astrophysics.

529. Observational Astrophysics. (3:3:0) Prerequisites: Physics 527, 528.
Survey of important areas of current research in modern observational astrophysics.

536, 537. Space and Planetary Physics. (3:3:0 ea.) Prerequisite: consent of instructor.
Topics will include solar physics, interplanetary fields, atmospheres of earth and planets. Offered on sufficient demand.

551. Elements of Quantum Theory. (3:3:0) Prerequisites: Physics 221, Math. 434, or equivalent.
Analytical foundations of quantum mechanics; applications from atomic and molecular spectography, quantum statistics, solid state physics, etc.

552. Elements of Nuclear Theory. (3:3:0) Prerequisite: Physics 551 or equivalent.
Foundations of nuclear physics considered in a quantum theory context: nuclear scattering, radioactivity, nuclear reactions, nuclear models, elementary particles, etc.

555. Nuclear Reactor Physics. (3:3:0) Prerequisite: Chem. Eng. 582 or consent of instructor.
Introduction to neutron physics in multiplying and nonmultiplying media; diffusion and slowing down of neutrons; multigroup reactor theory.

557. Nuclear Reactor Physics Laboratory. (1:1:2) Prerequisite: Physics 555.
Laboratory experiments in neutron and nuclear reactor physics; reactor operation; cross-section, neutron age, and diffusion parameter measurements.

561. Fundamentals of Acoustics. (4:4:0)
General consideration of the generation, transmission, and reception of sound. Discussion of vibrating systems, properties of elastic media, mechanical and electrical energy, and radiation.

562. Acoustical Measurements. (2:0:4) Prerequisite: completion of or concurrent registration in Physics 561.
Selected experiments in acoustics.

565R. Acoustics of Music and Speech. (3:3:0 ea.) Prerequisite: Physics 561 or consent of instructor.
Content alternates between topics in music and topics in speech. Sound production and perception; techniques for analysis and synthesis; computer modeling; machine recognition; ensemble effects. Offered on sufficient demand.

566R. Architectural Acoustics and Noise. (3:3:0 ea.) Prerequisite: Physics 561 or consent of instructor.
Content-alternates between topics in architectural acoustics and topics in noise. Computer modeling of enclosures; techniques for measuring noise spectra; room design; noise control. Offered on sufficient demand.

581. Solid-State Physics. (3:3:0) Prerequisites: Physics 431 and 551.
Introduction to solid-state physics for students in physics, chemistry, geology, and engineering. Survey of phenomena occurring in solids, and important physical concepts by which these phenomena are understood.

591R. Seminar. (½:1:½-1:0)
Required of all graduate students every semester in residence.

611, 612. Astrophysics. (3:3:0 ea.) Prerequisite: consent of instructor.

617. Advanced Topics in Theoretical Physics. (3:3:0)

618. Advanced Topics in Theoretical Physics. (3:3:0)

621. Dynamics. (3:3:0) Prerequisite: Physics 322.

623. Dynamics of Continuous Media. (3:3:0) Prerequisite: Physics 621.

625. Theory of Relativity. (3:3:0) Prerequisite: Physics 621.

626. Relativistic Astrophysics. (3:3:0) Prerequisite: Physics 625.

627, 628. Advanced Topics in Astrophysics. (3:3:0 ea.) Prerequisite: consent of instructor.

631, 632. Statistical Mechanics. (3:3:0 ea.)

641, 642. Mathematical Theory of Electricity and Magnetism. (3:3:0 ea.) Prerequisite: Physics 342.

645, 646. Plasma Physics. (3:3:0 ea.) Prerequisites: Physics 431, 621, 642.

651, 652. Quantum Mechanics. (3:3:0 ea.) Prerequisites: Physics 518, 551.

655, 656. Nuclear Physics. (3:3:0 ea.) Prerequisite: Physics 552.

671. Atomic and Molecular Spectroscopy. (3:3:0) Prerequisite: consent of instructor.

672. Observation and Analysis of Spectra. (3:1:4) Prerequisite: Physics 671 or consent of instructor.

681, 682. Modern Theory of Solid State. (3:3:0 ea.) Prerequisites: Physics 581, 651.

697R. Research. (Arr. ea.)

699. Research and Thesis for Master's Degree. (Arr.:Arr.:Arr.)

711R. Advanced Topics in Physics. (1-3:1-3:0 ea.) Prerequisite: consent of instructor.

751, 752. Advanced Quantum Theory. (3:3:0 ea.) Prerequisite: Physics 652 or consent of instructor.

797R. Research. (Arr. ea.)

799. Research and Dissertation for Ph.D. Degree (Arr.)

Political Science

Distinguished Professor: Grow.
Professors: Farnsworth, Hickman, Hillam (Chairman, 270 MSRB), Mabey, Melville, Midgley, Reeder.
Associate Professors: Buckwalter, Harlow, Morrell, Slover, Snow, Sorensen, Taylor, Tullis.
Assistant Professors: Williams, Wright.

Political Science is concerned with the interplay of power and interests in local, national, and international communities and the resulting formulation and execution of public policy. On the basis of empirical theory and political philosophy, political science analyzes, in particular, governments, parties, and pressure groups, law, and public administration. It investigates foreign political systems and international relations in addition to emphasizing the American political systems at all levels. The faculty members of the department have had varied and excellent academic training as well as broad practical experience both in this country and overseas.

Requirements for an Undergraduate Major

Satisfactory completion of 30 credit hours of courses—including 110*, 300, 302, and others as indicated below—and submission of a senior paper or completion of a project approved by the department (499 is specifically designed to help the student meet the paper requirements). No D credit may be counted toward the 30-hour total.

*110 may be substituted with 310 and 311.

Undergraduate Curriculum and Tracks

The curriculum of the Department of Political Science is designed (1) to provide a background for students looking for a broad liberal arts education, (2) to train students for teaching political science in secondary schools, (3) to prepare students for graduate school in political science, (4) to prepare students for law school and a career in law, (5) to prepare students for graduate study in public and business administration, and (6) to train students for the public service in such fields as justice administration and environmental politics.

The undergraduate curriculum is organized into seven distinct tracks. Students entering the department may select from one of the following, each of which has listed additional required and recommended courses:

Liberal Arts. Required: 150, 170. Recommended: minimum of two fields at a specialization level.

Preparation for Teaching in Secondary Schools. Required: 150, 170. Recommended: minimum of two fields at a specialization level. (See the Education section of this catalog for details regarding the secondary teaching certification of a political science major and minor.)

Preparation for Graduate Political Science. Required: 301, 303. Recommended: 150, 170, 499R, 500R.

Preparation for Law School. Required: 301. Recommended: 364, 500R, and courses in American institutions and political analysis.

Preparation for Graduate Public Administration. Required: 330. Recommended: courses in American institutions.

Preparation for Graduate Business Administration. Required: 330. Recommended: courses in American institutions.

Preparation for a Career in Public Affairs. (e.g., justice administration, environmental affairs). Required: 330. Recommended: 310, 311, 313, 500R.

Related Study for Political Science Majors

No minor is required for students majoring in political science except in connection with secondary teaching certification. Instead, majors should plan a broad program within the social sciences.

(1) In satisfying the American history and government requirement, majors are encouraged to take both Hist. 120 and 121, rather than 170.

(2) Study is also encouraged in each of the social sciences: economics, sociology (especially 350), anthropology, geography (especially 441), psychology (especially 350, 430), and history offerings.

Another means of achieving breadth in the social sciences is by taking a concurrent major or a minor in one of the following interdisciplinary programs: Asian Studies, European Studies, International Relations, or Latin American Studies. Majors also should prepare themselves in two areas of necessary skills.

(3) For those who may plan graduate study in political science, as well as those emphasizing either foreign or international affairs, foreign language training is highly recommended. Such training should extend to at least the intermediate level. Because the University has a language requirement or an alternative, any other major ought to consider which would be more beneficial to them.

(4) A behavioral research composite of courses emphasizing quantitative analysis is also advisable, including Sociol. or Psych. 350, 6 credits in statistics, 3 credits in computer science, Math. 385, plus Phil. 205, as well as relevant social science courses in (2) above.

Requirements for an Undergraduate Minor in Political Science

Bachelor-degree candidates taking a minor in political science are required to complete satisfactorily a minimum of 15 credit hours of courses offered by the department. The minor should emphasize breadth (all three introductory courses, 110, 150, and 170, plus two upper-division courses) or depth (any one of the introductory courses plus four related upper-division courses). If the latter option does not include 110, this American course should be taken as part of the American history and government requirement, rather than taking Hist. 170.

M.A. Degree

The department also offers programs leading to the Master of Arts degree in political science, consisting of study in 500-level courses and in 600-level seminars. The latter are offered to graduate students only.

See the **Graduate School Catalog** for details.

Courses

105R. Current Affairs. (1:1:0) (G-SS m)

Survey of current events and implications in economics, sociology, politics, and international relations.

110. American Government and Politics. (3:3:0) Home Study also. (G-SS m)

Origin and development of federal Constitution; national, state, and local governments and politics with their environments.

150. Comparative Government and Politics. (3:3:0) Home Study also. (G-SS m)

Patterns of European, Asian, Latin American, and other political systems and politics.

170. Introduction to International Politics. (3:3:0) Home Study also. (G-SS m)

Survey of basic forces, practices, institutions, and foreign policies of major powers, and problem areas in international politics.

300. Political Inquiry. (3:2:1) (G-SS) Prerequisites: Pol. Sci. 110, 150; completion of or concurrent registration in Pol. Sci. 170.

Systematic treatment of methodology in political science, including theory and techniques of qualitative and quantitative research designs.

301. The Logic of Political Inquiry. (3:3:0) (m) Sorensen

Comparative analysis of the logic of scientific and normative inquiry and the logical structure of the products of such inquiry.

302. Moral Foundations of Politics. (3:3:0) (G-SS m) Midgley, Sorensen

General historical introduction to the major expressions of political philosophy.

303. Empirical Political Theory. (3:3:0) Prerequisite: major in political science; to be taken semester prior to Graduate Records Examination. Buckwalter

Background, development, and critique of empirical theories about systems, functionalism, elites, etc., in the political process.

304. Western Political Heritage—Ancient. (3:3:0) (G-SS m) Midgley, Sorensen

The history of political philosophy, beginning with the pre-Socratics and ending with Hobbes.

305. Western Political Heritage—Modern. (3:3:0) (G-SS m) Midgley, Sorensen

The history of political philosophy, beginning with Hobbes and ending with the recent revival of political philosophy.

307. American Political Heritage. (3:3:0) (G-SS m) Home Study also. Melville

American political and legal ideas from the colonial period to the present.

309R. Topics in Political Philosophy. (3:3:0) (G-SS) Midgley, Sorensen

When taught, the topics will be listed in the class schedule (e.g., Contemporary Political Philosophy; Asian Political Thought; Logic and Ethics; Marxism; Political Theology).

310. The United States Political System. (3:3:0) (G-SS m) Prerequisite: Pol. Sci. 110. Buckwalter, Grow, Melville

Systematic inquiry into the national government and politics of the U.S. in the context of American society as a whole.

311. State and Local Government and Politics. (3:3:0) (G-SS m) Home Study also. Prerequisite: Pol. Sci. 110. Grow, Williams

Relation of state and national governments; forms of state governments and politics; types of municipal governments and their operation.

312. Urban Government. (3:3:0) (m) Williams

Growth, development, dynamics, and problems of urban government.

313. Parties and Pressure Groups in the U.S. (3:3:0) (G-SS m) Prerequisite: Pol. Sci. 110. Grow

Organization and methods of action of American political parties and pressure groups.

314. The United States Presidency. (3:3:0) (G-SS m) Melville

The study of the American president and vice-president, White House office, Bureau of the Budget, Cabinet, and National Security Council.

315. American Legislative Systems. (3:3:0) (G-SS m) Prerequisite: Pol. Sci. 110. Buckwalter, Grow

Structure and organization of Congress and state legislative bodies; nature of business transacted and conflict resolution.

319R. Topics in American Government and Politics. (3:3:0) (G-SS) Buckwalter, Grow, Melville, Slover, Tullis, Williams

When taught, the topic will be listed in the class schedule (e.g., Intergovernmental Relations, National Security Aspects of Government, Minority Group Politics).

329R. Topics in Political Behavior. (3:3:0) (G-SS) Buckwalter, Farnsworth, Tullis, Taylor, Sorensen

When taught, the topic will be listed in the class schedule (e.g., Psychology of Politics, Sociology of Politics, Political Socialization).

330. Introduction to Public Administration. (3:3:0) (G-SS m) Grow, Slover

Organization and operation of government. Relationship of administration to other branches of government; types of control over administration.

339R. Topics in Public Affairs. (3:3:0) (G-SS) Buckwalter, Slover, Williams

When taught, the topic will be listed in the class schedule (e.g., Indian Tribal Politics, Environmental Politics, Public Policy, U.S. Overseas Operations).

350R. Communist and Totalitarian Government and Politics. (3:3:0) (G-SS) Farnsworth, Mabey, Morrell

Study of political behavior in Communist and totalitarian countries (e.g., Soviet Union, China, Eastern Europe). Selected emphasis will be announced in the class schedule.

351R. Parliamentary Government and Politics. (3:3:0) (G-SS) Farnsworth, Grow, Mabey, Morrell

Study of political behavior in parliamentary systems (e.g., United Kingdom, Japan, Western Europe). Selected emphasis will be announced in the class schedule.

352R. Third-World Government and Politics. (3:3:0) (G-SS) Farnsworth, Mabey, Tullis

Study of political behavior in the Third World areas (e.g., Latin America, Middle East, Asia, Africa). Selected emphasis will be announced in the class schedule.

359R. Topics in Comparative Government and Politics. (3:3:0) (G-SS) Farnsworth, Mabey, Morrell, Tullis

Specific topics to be treated (e.g., elections, legislatures, political parties, revolution, politics and social change, local government) will be announced in the class schedule.

360. Constitutional Law—American Federal System. (3:3:0) (G-SS m) Reeder, Williams

361. Constitutional Law—Rights and Immunities. (3:3:0) (G-SS m) Reeder, Williams

363. Administrative Law of the U.S. (3:3:0) (G-SS m) Reeder
Legal setting for administrative bodies and judicial control of administrative action. Cases in administrative law read and discussed.

364. Jurisprudence. (3:3:0) (G-SS m) Midgley, Reeder
Problem approach to ancient and modern legal philosophies, with special attention given to the nature of justice and the relation of law to morality.

368. Anglo-American Legal Institutions. (3:3:0) (G-SS m) Reeder
Origins and development of common law and equity, the writ system, court systems, basic legal terms, and the anatomy of a lawsuit.

370. Theory of International Relations. (3:3:0) (G-SS m) Prerequisite: Pol. Sci. 170. Recommended: Pol. Sci. 300. Hillam
Approaches to the study of the actions and interactions of national systems.

373. International Law. (5:5:0) (G-SS m) Reeder
Nature and function of international law: recognition, succession, jurisdiction rights, and immunities of states; nationality and jurisdiction over nations.

375. International Organizations. (3:3:0) (G-SS m) Prerequisite: Pol. Sci. 170. Recommended: Pol. Sci. 300. Taylor
Survey of process of international organizations in historical and political perspective.

377R. Foreign Relations. (3:3:0) (G-SS) Buckwalter, Hickman, Morrell, Taylor
Study of the foreign relations of such countries as the United States, the Soviet Union, and China. Selected emphasis will be announced in the class schedule.

378R. International Systems. (3:3:0) (G-SS) Hickman, Hillam, Morrell, Taylor, Tullis
The study of the international relations of Asia, Africa, the Middle East, Latin America, and the Communist world. Selected emphasis will be announced in the class schedule.

379R. Topics in International Relations. (3:3:0) (G-SS) Hickman, Hillam, Slover, Taylor
Study of such topics as arms control, environment, population development, and strategy. Selected emphasis will be announced in the class schedule.

☐**Geography 441. Political Geography.** (3:3:0)

☐**History 474. U.S. Diplomatic History.** (3:3:0)

☐**History 476. American Constitutional History to 1865.** (3:3:0)

☐**History 477. American Constitutional History since 1865.** (3:3:0)

498R. Directed Individual Study. (1-2:0:1-2 ea.) (G-SS) Prerequisites: senior status and permission of department chairman and instructor.

499. Senior Seminar. (3:2:0) (G-SS) Prerequisite: next-to-last or last undergraduate semester in major.
Research in field of concentration and writing of an extensive seminar paper. (For majors who plan on graduate study in political science.)

500R. Field Study. (1-9:Arr.:Arr.) (G-SS) Prerequisites: Pol. Sci. 110 or 310, 300.
Study and field experience through observation and participation in the process of government.

501R. Advanced Topics. (3:3:0) (G-SS)
Selected advanced topics for graduate students only. Can be taken concurrently with 300- and 400-level courses.

505. Asian Political Thought. (3:3:0) Jagchid
Survey of Asian political thought, both traditional and modern.

512. Public Policy. (3:3:0) (G-SS m) Buckwalter, Williams
A treatment of contemporary public problem identification; the processes of policy formulation and legitimization; implementation and evaluation of public policies.

☐**Public Administration 600. Fundamentals of Public Administration.** (3:3:0)

☐**Public Administration 602. Organizational Analysis.** (3:3:0)

☐**Public Administration 603. Public Personnel Administration.** (3:3:0)

☐**Public Administration 604. Public Finance Administration.** (3:3:0)

☐**Public Administration 608. Contemporary Issues and Administration.** (3:3:0)

☐**Public Administration 620. Municipal Administration.** (3:3:0)

☐**Public Administration 621. City Planning.** (3:3:0)

☐**Public Administration 630. International Project Administration.** (3:3:0)

☐**Public Administration 631. Comparative Public Administration.** (3:3:0)

☐**Public Administration 640R. Program Administration.** (3:3:0)

690R. Seminar in Political Philosophy. (1-3:1-3:0 ea.) (m) Prerequisite: related advanced course(s). Melville, Midgley, Sorensen

691R. Seminar in Politics. (1-3:1-3:0 ea.) (m) Prerequisite: related advanced course(s). Buckwalter, Grow, Melville, Slover

692R. Seminar in Empirical Theory. (3:3:0) Prerequisite: related advanced course(s). Buckwalter, Taylor

695R. Seminar in Comparative Government and Politics. (1-3:1-3:0 ea.) (m) Prerequisite: related advanced course(s). Farnsworth, Mabey, Morrell, Tullis

696R. Seminar in Public Law. (1-3:1-3:0 ea.) (m) Prerequisite: related advanced course(s). Reeder, Williams

697R. Seminar in International Relations. (1-3:1-3:0 ea.) (m) Prerequisite: related advanced course(s). Hickman, Hillam, Taylor

698R. Directed Individual Study. (1-2:1-2:0 ea.) Prerequisite: permission of graduate committee and instructor.

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

Psychology

Professors: Bennion, Bergin, Cooper, Cundick, Daniels, Fleming, Hardy, Howell, Jensen, Pedersen (Chairman, 1230 SFLC), B. Robinson, Smith.
Associate Professors: Brown, Bunker, Payne, Sorenson, Stimpson, Thorne.
Assistant Professors: Budge, Higbee, Jenkins, Lambert, Maughan, P. Robinson, Weight, Wells.
Special Instructor: Bates.

The Department of Psychology offers to the student a program designed to: (1) provide a breadth and depth of knowledge in the area of human behavior; (2) provide an opportunity for self-development in interpersonal skills and leadership training; and (3) expand the frontiers of knowledge through collaborative student-faculty research and scholarly activity.

The field of psychology offers careers in college and high school teaching; various counseling services in elementary and secondary schools; clinical service in clinics, institutions, and private practice; various psychological services in business, industry, and government; and research in basic and applied psychology. Most professional fields of psychology require advanced degrees, but there are a limited number of opportunities for those with bachelor's degrees, such as high school teaching, probation work, junior-level social work, employment interviewing and testing, and junior-level psychological testing (psychometry).

The study of psychology has particular value for students preparing for teaching and counseling of various kinds, parenthood, social work, law, medicine, business, and public administration. Psychology is also of value in supporting other specializations concerned with man and his works.

Undergraduate students may take any psychology course at or below the 500 level during any year, providing they have met the course prerequisites. The course number does not indicate the year that the course is normally taken.

Requirements for an Undergraduate Major

Students majoring in psychology must take Psych 111; Psych. 369 or both 370 and 374; three of the following four courses: Psych. 360, 365, 450, and 460; Psych. 491R or 497; and additional courses to make a total of 30 semester hours.

In general, students anticipating doing graduate study in psychology should take Psych. 370 and 374. In order to be admitted into graduate work in the Psychology Department at Brigham Young University, students will be required to complete Psych. 111, 370, 374, and three of the following four courses: Psych. 360, 365, 450, and 460.

Students who plan to gain employment in social work upon completion of the bachelor's degree or who plan to enter a graduate school of social work may major in psychology and minor in undergraduate social work. It is recommended that these students take the following psychology courses: Psych. 111; Psych. 369 or both Psych. 370 and 374; Psych. 440; Psych. 450; Psych. 350 or 357; and at least one of the following: Psych. 320, 321, 322 or 445. Required for an undergraduate social work minor are Sociol. 111 (or 112), 360, 362, and 6 hours from Sociol. 364, 366, 389, and 460R.

Note: Students planning to certify as elementary or secondary school teachers should consult the Education section of the catalog.

Although a minor is not required, students majoring in psychology may select a minor or combination of enrichment courses from a wide range of subjects, depending upon their educational and vocational objectives. Students planning to terminate with a bachelor's degree should choose a minor area or a concentration of courses which broaden their employment opportunities. Suggested areas are secretarial work, various branches of business, recreation, and social work.

Individual academic assistance may be obtained through the College of Social Sciences Advisement Center located in 136 FOB.

Requirements for an Undergraduate Minor

For a minor in psychology the following program is required: Psych. 111, plus electives from the remaining undergraduate and 500-series courses to make a total of 14 semester hours.

Graduate Degrees

The following graduate programs are offered: a master's degree in school psychology; a master's degree in instructional psychology; a Ph.D. in clinical psychology (APA accredited); and a Ph.D. in general psychology, with special emphasis in several areas, including social and experimental. See the **Graduate School Catalog** for details on these programs.

Courses

111. General Psychology. (3:3:0) Home Study also. (G-SS) Prerequisite for most upper-division psychology classes.

Foundation course covering essentials of modern scientific psychology.

211R. Frontiers of Psychology. (3:3:0) Home Study also. (G-SS) Prerequisite: Psych. 111.

Intensive survey of the general field, with special emphasis on topics not covered in detail in Psych. 111.

240. Personal and Social Adjustment. (3:2:1) Home Study also. (G-SS)

Study of the prevention and amelioration of mental and personal difficulties.

320. Psychology of Childhood. (3:3:0) Home Study also. (G-SS) Prerequisite: Psych. 111.

Critical presentation of research on physical, mental, emotional, and social development of the child and his interests, values, and motivations.

321. Psychology of Adolescence. (3:3:0) Home Study also. (G-SS) Prerequisite: Psych. 111.

Development and maturation during adolescence, with special attention to research methodology.

322. Psychology of Adult Life. (2:2:0) Home Study also. (G-SS) Prerequisite: Psych. 111.

Physiological, intellectual, personality, and motivational changes associated with adulthood; geriatric and gerontological emphasis.

330. Industrial Psychology. (2:2:0) Home Study also. (G-SS) Prerequisite: Psych. 111.

Special application of psychology in human relations program for management. Important issues in relation to motivation morale, safety, efficiency, etc.

336. Personnel Psychology. (3:2:2) (G-SS) Prerequisite: Psych. 111.

Employment interviewing techniques; validation of psychological tests and biographical questionnaires; supervised experience in testing, job analysis, interviewing, and exposure to current personnel programs.

350. (Sociol.-Psych.) Introduction to Social Psychology. (3:3:0) Home Study also. (G-SS) Prerequisite: Psych 111 or Sociol. 111.

Nature of social influence; socialization; concepts of norm, role status; development of beliefs and attitudes; leadership; group processes.

357. (Sociol.-Psych.) Interpersonal Growth and Group Processes. (3:1:4) Home Study also. (G-SS) Prerequisite: Psych. 111 or Sociol. 111.

Each student shares responsibility for the building and systematic study of processes which facilitate more effective interpersonal relationships and group functioning.

359. Environmental Psychology. (3:3:0) Prerequisite: Psych. 111.

The psychological study of the interaction between man and his physical context.

360. Sensation and Perception. (3:3:0) (G-SS) Prerequisite: Psych. 111.

Sensory mechanisms, dimensions, and measurements; theories of organization; perception of space, time, self, persons.

365. Motivation. (3:3:0) (G-SS) Prerequisite: Psych. 111.

Theories of motivation and research methods. Motivation as related to learning and cognitive processes. Practical implications.

369. Psychological Methods. (3:3:0) (G-SS) Prerequisite: Psych. 111. Does not satisfy the mathematics, science, logic, and statistics group requirement.
A survey of research strategies and designs, techniques of data collection and analysis, and problems of testing and assessment.

370. Elementary Psychological Statistics. (G-ML) (4:3:2) Prerequisites: Psych. 111, Math. 105 or equivalent.
Introduction to descriptive and inferential statistics. Measures of central tendency, variability, correlation, sampling theory, and tests of significance.

374. Experimental Psychology. (3:2:3) (G-ML) Prerequisites: Psych. 111, 370 or equivalent.
Psychological methodology and its application. Emphasis on conducting and reporting experiments.

378. Psychological Tests and Measurement. (3:2:2) (G-SS) Prerequisites: Psych. 111, 370.
Statistical methodology of assessing and interpreting human performance and traits.

385. Physiological Psychology. (3:2:3) (G-SS) Prerequisite: Psych. 111.
Examination of the physiological foundations of behavior and their relation to behavior phenomena.

440. Abnormal Psychology. (3:3:2) (G-SS) Prerequisites: Psych. 111 and 5 additional hours in psychology.
Dynamics of maladjustment; review of major psychological disorders and therapeutic procedures. Fieldwork at Utah State Hospital.

445. Exceptional Children. (3:3:0) Home Study also. (G-SS) Prerequisite: Psych. 111.
Diagnosis of exceptionalities and their psychological significance; for example, gifted, mentally retarded, and physically and emotionally handicapped children.

450. Personality. (3:3:0) Home Study also. (G-SS) Prerequisite: Psych. 111.
Development and organization of personality; interaction of biological, psychological, and cultural determinants.

454. Psychology of Religion. (2:2:0) (G-SS) Prerequisite: Psych. 111.
Classification of religious behavior and experience; source of religious motivation; religion and the growth process.

460. Principles of Learning. (3:3:0) (G-SS) Prerequisite: Psych. 111.
A comprehensive study of the principles of learning; representative experiments; types of learning; principles of effective learning.

491R. Psychology Seminar. (1:1:0 ea.) (G-SS)
One seminar required of psychology majors. Reports and discussions of special topics and current psychological literature.

493R. Laboratory and Field Experience. (1:0:3) Prerequisite: consent of instructor.

495R. Independent Readings. (1-2:Arr.:Arr. ea.) (G-SS) Prerequisite: consent of instructor.

497. Senior Project. (2:1:3) (G-SS) Prerequisites: Psych. 370, 374, and senior standing.
An opportunity for the exceptional senior student to pursue individual research. Oral and written report required.

510. History and Systems of Psychology. (3:3:0) Prerequisite: graduate standing. Bunker, Howell

511. Instructional and Communicative Techniques. (2:1:2) Prerequisite: graduate standing in psychology.
Under faculty supervision, the student is given experience in planning, conducting, and carrying out the instruction of an undergraduate course.

520. Advanced Developmental Psychology. (3:3:0)
An overview of major research in genetic psychology, with emphasis placed on theory, content, and methodology.

526. Mental Retardation. (2:2:0) Prerequisite: Psych. 378 or equivalent.

530. (Sociol.-Psych.) Theory and Research in Social Psychology. (3:3:0) Prerequisite: Sociol.-Psych. 350.
A survey of current theory and research in social psychology, with emphasis on understanding the individual interaction.

550. Personality Theory. (3:3:0) Prerequisites: Psych. 111, 450, and 5 additional hours in psychology.
A critical review of the contemporary theories of personality that have been developed within the framework of major psychological systems.

555. (Sociol.-Psych.) Group Dynamics. (3:3:0) Prerequisite: Sociol.-Psych. 350.
Research and theories in group dynamics. May be used for credit either in psychology or sociology, but not in both.

560. Learning Theory. (3:3:0) Prerequisites: Psych. 111, 460 and 5 additional hours in psychology.
A critical review of current theories of learning and persistent problems.

561. Psycholinguistics. (3:3:0) Prerequisite: Psych. 111.
A survey of research and theory in verbal learning and verbal behavior, and the social implications of language usage.

562. Cognitive Processes. (3:3:0) Prerequisites: Psych. 360 or equivalent; graduate standing or consent of instructor.
A study of major theoretical and empirical developments. Interaction of sensory, perceptual, learning, and thinking processes.

565. Motivational Psychology. (3:3:0) Prerequisites: Psych. 365 or equivalent; graduate standing or consent of instructor.
Theoretical, historical, and empirical overview; recent trends and issues. Role of animal studies; methodological problems.

570. Computer Use in the Behavioral Sciences. (3:3:6) Prerequisites: Psych. 370, Comput. Sci. 231, or equivalent.
The use of electronic digital computers in the behavioral sciences.

572. Psychological Scaling. (3:3:0) Prerequisite: Psych. 370.
Scaling theory and methodology, with emphasis upon measurement in psychophysics and differential psychology. Offered alternate years.

573. Multivariate Analysis in Psychology. (3:3:0) Prerequisite: Psych. 370.
The principle descriptive statistics used in the analysis of multiple measurements: factor analysis, canonical correlation, multivariate analysis of variance and covariance, and multiple discriminant analysis. Offered alternate years.

574. Advanced Experimental Psychology. (2:1:5) Prerequisite: Psych. 111, 374, or equivalent.
Principles of instrumentation and experimental designs. Experience in planning, conducting, and reporting experiments.

577. Laboratory Instrumentation and Techniques. (3:1:4) (m) Prerequisite: Psych. 374.

583. Behavior Modification Techniques. (3:2:2)
Practical applications of behavior modification to academic, discipline, and emotional target behaviors of individuals and groups.

585. Psychophysiology. (3:3:0) Prerequisite: Psych. 111.
Critical study of physiological processes and psychological functions, including sensation, emotion, sleep and activity, motivation, and learning.

587. Psychopharmacology. (3:3:0) (m) Prerequisite: Psych. 585 or equivalent.
A study of the major classes of psychoactive drugs, with emphasis on drug-behavioral interactions.

597R. Independent Research. (1-3:0:2-5 ea.)

630. (Sociol.-Psych.) Attitude Change. (3:3:0) Prerequisite: graduate standing or consent of instructor. Stimpson

640. Psychodiagnostics I: Intelligence Testing. (3:3:5) Prerequisite: acceptance in clinical psychology. Bennion, Cundick, Howell, Weight

641. Psychodiagnostics II: Child and Adolescence. (3:2:6) Prerequisite: acceptance in clinical or school psychology. Bennion, Cundick, Wells, Weight

642. Psychodiagnostics III: Adult. (3:2:3) Prerequisite: acceptance in clinical psychology. Bennion, P. Robinson

644. Rorschach Techniques. (3:2:5) Prerequisite: acceptance in clinical psychology. Bennion, Howell

645. Issues in Clinical Psychology. (3:3:0) Prerequisite: acceptance in clinical psychology. Howell

646. Community Mental Health. (3:3:2) Prerequisite: acceptance in clinical psychology. Howell

651. Psychopathology. (3:3:2) Prerequisite: nine hours in psychology. Bennion, Howell, Thorne

665. Human Motivation. (3:3:0) Prerequisites: Psych. 365 or equivalent; graduate standing in psychology or allied discipline. Hardy

670. Advanced Statistics I. (3:3:2) Prerequisite: Psych. 370. Pedersen

671. Advanced Statistics II. (3:3:2) Prerequisite: Psych. 670. Pedersen

675. Personality Dynamics. (3:3:0) Prerequisites: undergraduate core courses and consent of instructor. Howell, Thorne

678. Measurement Theory. (3:3:0) Brown Cooper, Pedersen

680. Psychotherapy I: Child and Family. (3:3:3) Prerequisite: acceptance in clinical psychology. Cundick, Howell, Thorne, Wells

681. Psychotherapy II: Adult. (3:3:0) Prerequisite: acceptance in clinical psychology. Bennion, Robinson, Thorne

682. Psychotherapy III: Group. (3:1:6) Prerequisite: acceptance in clinical psychology. Howell, Thorne

683. Behavior Modification Therapy. (3:2:1) Prerequisite: acceptance in clinical psychology. Thorne, Wells

685. Advanced Psychophysiology. (3:3:0)

690. Seminar: Research Problems. (2:2:0)

695R. Independent Readings. (1-2:Arr.:Arr. ea.)

699. Master's Thesis. (6-9:Arr.:Arr.)

740R. Clinical Practicum. (3:0:8 ea.) Prerequisite: acceptance in clinical psychology. Bennion, Howell, Thorne

741R. Practicum in Assessment. (3:0:8 ea.) Prerequisite: acceptance in clinical psychology. Bennion, Howell, Payne

742R. Projects in Clinical Psychology. (3:0:8 ea.) Prerequisite: acceptance in clinical psychology. Bennion, Howell, Thorne

749R. Clinics Practicum. (1-2:0:3-6 ea.) Prerequisite: acceptance in clinical psychology. Cundick, Howell, Payne, Thorne

750, 751, 752, 753. Clinical Internship. (2:0:40 ea.) Prerequisite: acceptance in clinical psychology.

790R. Seminar: Developmental. (2:2:0 ea.) Prerequisite: consent of instructor.

792R. Seminar: Social Psychology. (2:2:0 ea.) Prerequisites: consent of instructor; Sociol.-Psych. 350.

795R. Seminar: Experimental Psychology. (2:2:0 ea.) Prerequisite: consent of instructor.

796R. Seminar: Clinical Psychology. (2:2:4 ea.) Prerequisite: acceptance in clinical psychology.

797R. Independent Research. (1-4:0:3-12 ea.) Prerequisite: consent of instructor.

799. Ph.D. Dissertation. (Arr.)

Recreation Education

Professors: Call, Hafen (Chairman, 273-C RB), Hartvigsen, I. Heaton, C. Jensen, Shaw.
Associate Professors: deHoyos, A. Heaton, Naylor, Olsen, Thorstenson.
Assistant Professor: Hansen.
Instructors: Holley, Palmer.

A student who is interested in the field of recreation education may obtain a recreation major, a minor, a teaching minor, or a composite major. He may also take specified recreation courses to fill certain general education requirements, and he may register for recreation courses on an elective basis.

Recreation Education Major. Majors are required to complete from 32 to 36 hours of core classes, and in addition they must select one to three areas of special emphasis. Included in the core are: Rec. Ed. 123, 301, 337, 387, 407, 505, 480R, courses in arts and crafts, Bus. Ed. 305, Health 430, and physical education courses in individual sports. Possible areas of emphasis are: camping education, community and family recreation, dance, minority and disadvantaged relations, parks planning and development, sports, therapeutic recreation, and youth-adult service agencies. Detailed program outlines are available at the College of Physical Education Advisement Center (205 Richards Building).

Recreation Education Minor. Students minoring in recreation education should take the following courses: Rec. Ed. 123, 301, 337, 407, and 6 additional semester hours selected by an adviser from the Recreation Education Department. (Those desiring a teaching minor should obtain a detailed outline which is available at the advisement center, 205 RB.)

Composite Major: See the Education section of this catalog.

Master's Degree. The master's degree program provides the opportunity for students to obtain a Master of Arts (thesis) or Master of Recreation Education (field project) degree. Areas of special emphasis include the following options: community school recreation, outdoor recreation, recreation administration, and therapeutic recreation. Information concerning these programs may be obtained from the department chairman's office, 273-C RB.

Intramural Participation. Students are encouraged to participate in the Intramural activities listed below which are offered on a noncredit basis. These activities are conducted from 6:00 p.m. to 10:00 p.m. on Tuesday, Wednesday, Thursday, Friday, and all day Saturday. Further information is available at the advisement center, 205 RB.

Coed Activity
Badminton, bowling, darts, golf, horseshoes, racketball, skiing, softball, table tennis, tennis, and volleyball.

Individual Sports
Badminton (singles and doubles), checkers, chess, handball (singles and doubles), horseshoes (singles and doubles), racketball (singles and doubles), table tennis (singles and doubles), and tennis (singles and doubles).

Special Events
Arm wrestling, bicycle racing, golf, obstacle course, road rally, swimming, track and field (coed), turkey trot, weight lifting, and wrestling.

Team Sports
Basketball (single and coed), flag football, coed inner tube water polo, soccer, softball (single and coed), volleyball (single and coed), and water basketball.

Courses

123. Introduction to Outdoor Recreation. (1:0:3) (m) Hansen, Holley, Olsen
Participation in a variety of outdoor activities that may be included in a camp program.

223. Fundamentals and Techniques of Mountaineering. (2:1:3) (m) Hansen
Techniques of climbing; knowledge about food, climate, and clothing; and practices for safety and rescue.

301. Introduction to Recreation. (2:2:0) Home Study also. (m) deHoyos, Palmer, Thorstenson
Foundation course designed to give students a basic understanding of the total field of recreation.

337. Philosophy of Recreation. (2:2:0) Home Study also. (G-SS m) deHoyos, Hansen, Naylor, Thorstenson
Examination of the leisure era and its implications and challenge to the field of recreation.

370. Introduction to Recreation Therapy. (3:2:2) (m) Call
Designed to introduce the student to the concepts and practices of recreation therapy.

371. Family Recreation. (2:2:0) Home Study also. (m) A. Heaton, Holley
Social activities for small groups and families.

387. Planning for Social Recreation. (2:2:0) Home Study also. (m) A. Heaton, Thorstenson
Leadership skills for directing large groups in a social setting.

388. Leadership in Dance. (2:2:0) (m) A. Heaton
Designed to give experience and training in dance for community, school and church recreation leaders.

407. Administration of Neighborhood Parks and Community Centers. (3:3:0) (m) Prerequisites: Rec. Ed. 301, 337, 387. Hafen, Hansen, Naylor
Organization and administration of playground and community center programs.

410. Problems and Trends in Outdoor Recreation. (2:2:0) (m) Hansen, Thorstenson
Role of outdoor recreation in our modern society. Includes study of government and nongovernment functions.

470. The Therapeutic Recreation Program. (2:1:2) (m) Prerequisite: Rec. Ed. 370 or equivalent. Thorstenson
Problems of organization and administration of recreational therapy programs in resident and nonresident facilities.

471. Problems in Recreation for the Neuropsychiatric Patient. (2:1:2) Prerequisites: Rec. Ed. 370, 470, or equivalent. Call
Programming for resident, day-care, and out-patient facilities for emotionally or psychologically disturbed patients.

472. Therapeutic Recreation in Rehabilitation. (2:1:2) Prerequisites: Rec. Ed. 370, 470, or equivalent. Thorstenson
The rehabilitation team, and the relationship of the recreation therapist to other team members.

480R. Directed Leadership in Recreation. (2-12:1:20-40 ea.) Prerequisite: Rec. Ed. 407 or consent of instructor. Hafen, Naylor
Supervised experience in public and/or private recreational programs. A maximum of 12 credit hours permitted.

502R. Camping Workshop. (2:2:4 ea.) (m) Hansen, Olsen
Features training and preparation for a week of laboratory experience in a primitive area. A maximum of 4 credit hours permitted.

503. Administration of School and Community Camps. (2:2:Arr.) (m) Hansen
Administration of camps and outdoor programs; site selection and development; program planning and staffing.

505. Administration of Community Recreation. (3:3:0) (m) Prerequisites: Rec. Ed. 301, 337. Hansen, Naylor
Facilities, personnel, financing, budget, legal aspects, and departmental organization as they relate to community recreation.

570. Therapeutic Recreation for Neurological Handicaps. (2:1:2) (m) Prerequisites: Rec. Ed. 370, 470, or equivalent. Call
Recreation programs in school, community, and hospital settings, for individuals with neurological and other handicaps.

583. Workshop in Recreational Dance. (1-2:0:40-80) A. Heaton
Advanced techniques for teaching dance to recreation groups.

585. (Ed.-Rec. Ed.) The Community School. (2:2:1) Home Study also. I. Heaton, Olsen
Basic concept of the community school, including its history, organization, funding, leadership, facilities, and value to the community.

605. (Ed.-Rec. Ed.) Community School Administration. (2:1:Arr.) I. Heaton, Olsen, Rogers

609. Recreation Program. (2:1:Arr.) Prerequisites: Rec. Ed. 407, 505, 692; or consent of instructor. Naylor Thorstenson

679R. Internship in Community School Leadership. (1-6: 1-6:3-30 ea.) I. Heaton, Olsen, Rogers

692. Research Methods in Recreation. (3:3:0) Shaw

694. Seminar in Readings. (2:2:0) Hafen

696R. Seminar in Problems. (1-2:1-2:0) DeHoyos, I. Heaton, Olsen, Rogers

698. Field Projects. (1-4:2-5:0) Hafen

699. Thesis for Master's Degree. (6-0:Arr.:Arr.) Hafen

Religious Instruction—Ancient Scripture

Professors: R. L. Anderson, Bankhead, Clark (emeritus), Nibley, Patch, Rasmussen (Assistant Dean, 156 JSB), Sperry (emeritus).
Associate Professors: Cheesman, Felt, Holland (Dean, 144 JSB), Nyman, Pearson, H. D. Peterson, Ricks, Skousen.

Assistant Professors: Bentley (emeritus), Brown, Griggs, Harris, Ledbetter, V. Ludlow, Matthews (Chairman, 121 JSB), Meservy, Parsons, Shields, Taylor.

This department, along with its companion department of Church History and Doctrine, provides a basic service for all students of the University. It is the intent and purpose of Religious Instruction to provide all students the opportunity to grow and mature in their religious concepts and appreciations as they grow and develop in their academic disciplines at the University. After completion of the primary Book of Mormon courses, students should choose additional courses that best suit their needs and interests.

Since undergraduate majors in religion are not offered, there are no areas of specialization. However, there are graduate minors offered on both the master's and doctoral levels.

Courses

121, 122.Introduction to the Book of Mormon. (2:2:0 ea.) Home Study also. (G-R)
A consideration of the origin, content, and teachings of the Book of Mormon. (Returned missionaries should take the upper-division courses 421 and 422.)

211, 212. (Also 211R, 212R for Jerusalem Semester Abroad students) The New Testament. (2:2:0 ea.) Home Study also. (G-R)
Course 211 deals with the Gospels. Course 212 deals with the Book of Acts, Paul and his letters, and the literature of the early Church.

301, 302. (Also 301R, 302R for Jerusalem Semester Abroad students) The Old Testament. (2:2:0 ea.) Home Study also. (G-R)
Course 301 is a brief introduction to the structure of the Old Testament and a study of its great teachings from Genesis to I Kings 11. Course 302 considers I Kings 12 to Malachi.

327. The Pearl of Great Price. (2:2:0) Home Study also. (G-R)
The origin and content of the Pearl of Great Price.

390R. Special Studies in Religion. (1:1:0)

421, 422. Introduction to the Book of Mormon. (2:2:0 ea.) (G-R)
A consideration of the origin, content, and teachings of the Book of Mormon (for returned missionaries and mature students).

501. Analysis of the Old Testament: The Pentateuch and Historical Books. (3:3:0)

502. Analysis of the Old Testament: Prophetic Books. (2:2:0)

503. Analysis of the Old Testament: Poetic and Wisdom Literature. (2:2:0)

510R. Special Topics in Ancient Scripture. (2-3:2-3:0 ea.)
Special topics in scriptural themes.

511. The Gospels. (2:2:0)

512. Paul's Life and Letters. (2:2:0)

513. The General Epistles and the Apocalypse. (2:2:0)

514. Historical Background of the New Testament. (2:2:0)

521, 522. Analysis of the Book of Mormon I, II. (3:3:0 ea.)

523. External Evidences of the Book of Mormon. (2:2:0)

527. History and Doctrines of the Pearl of Great Price. (3:3:0)

604. Origins of the Old Testament. (3:3:0)

606. The Apocrypha and Pseudepigrapha. (2:2:0)

608R. Readings in Old Testament Studies. (1-6:1-2:0 ea.)

609R. Seminar: Old Testament. (1-6:1-2:0 ea.)

610. Early Christian Literature. (2:2:0)

610R. Graduate Seminar in Ancient Scripture (1-6:1-2:0 ea.)

611. Formation of the New Testament: Text and Canon. (2:2:0)

612. Textual Criticism of the New Testament. (2:2:0)

618R. Readings in the New Testament. (1-6:1-2:0 ea.)

619R. Seminar: New Testament. (1-6:1-2:0 ea.)

620R. Readings in Ancient Scripture. (1-6:0:0 ea.)

621R. Seminar: Book of Mormon. (1-6:1-2:0 ea.)

627R. Seminar: Pearl of Great Price. (1-6:1-2:0 ea.)

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

799. Ph.D. Dissertation. (Arr.)

Religious Instruction— Church History and Doctrine

Professors: Andrus, Backman, Barron, L. Berrett, Burton, Cowan, Doxey (emeritus), Horsley, Palmer, Rich, Turner.
Associate Professors: I. J. Barrett, Bowen, Cannon, Fugal, Garrard, Hartshorn, M. Petersen.
Assistant Professors: W. K. Anderson, G. Anderson, Cook, Otten, Pace, Porter (Chairman, 123 JSB), Stevenson.
Instructor: Bloxham.

The Department of Church History and Doctrine exists for the purpose of helping students gain an understanding of the events and processes that have made the Church of Jesus Christ what it is today. It is necessary to study LDS Church history and doctrine in order to appreciate the roles of God, his son Jesus Christ, and his latter-day prophets during the unfolding of events in this, the last dispensation of time. A student who learns the factual and spiritual nature of Church history and doctrine is in a position to weigh, evaluate, relate, and absorb the elements that will help him achieve a Christ-like eternal life.

There is no undergraduate major available in the Department of Church History and Doctrine. There are graduate minors offered on both the master's and doctoral levels. The prerequisites for a graduate minor are Relig. 341 and 342 plus a knowledge of the contents of **The Comprehensive History of the Church,** by B. H. Roberts. Fields of study include Christian history, the Doctrine and Covenants, LDS history, theology, and world religions.

Courses

231, 232 (Also 231R, 232R for all Semester Abroad students other than those in the Jerusalem program). The Gospel in Principle and Practice. (2:2:0 ea.) Home Study also. (G-R)
A consideration of the basic principles of the gospel of Jesus Christ in the light of the practical needs and problems of today's youth.

261. (Geneal.-Relig.) Introduction to Genealogy. (2:2:0) Home Study also. (G-R)
An introductory course in basic genealogical concepts, doctrinal background, essential record sources, modern methods of research numerous genealogical forms and their uses, successful correspondence, the writing of biographies and autobiographies, the use of the Genealogical Society Library, and the starting of one's book of remembrance.

324, 325. The Doctrine and Covenants. (2:2:0 ea.) Home Study also. (G-R)
Origin and content of the Doctrine and Covenants. Course 324 gives a brief discussion of the history of the Doctrine and Covenants and covers Sections 1 through 70. Course 325 considers Sections 71 through 136.

333. Teachings of the Living Prophets. (2:2:0) Home Study also. (G-R)
Distinctive doctrines of the gospel, emphasizing the teachings of the living prophets and recent conference reports.

334. Priesthood and the Living Church. (2:2:0) (G-R)
A review of basic principles of Church government, including doctrine of the priesthood, procedures of Church correlation, and functions of special Church agencies.

335. Mormonism and Modern Scientific Thought. (2:2:0) (G-R)
A consideration of significant theological-philosophical concepts in Mormonism, as they relate to certain challenging areas of modern scientific assumption involving God, man, and the universe.

338. Your Religious Problems. (2:2:0) (G-R)
Consideration of problems pertaining to the individual student.

341. Latter-day Saint Church History to 1846. (2:2:0) Home Study also. (G-R)
A chronological study of Church history and doctrine.

342. Latter-day Saint Church History after 1845. (2:2:0) Home Study also. (G-R)
A chronological study of Church history and doctrine.

344. The Church in the Twentieth Century. (2:2:0) (G-R)
A consideration of the organizational development, programs, literature, teachings, biographies of Church leaders, and other developments in the modern era of Church history.

351. Mormonism and the World's Religions. (2:2:0) Home Study also. (G-R)
A survey of the non-Christian religions of the world, including comparisons with Mormon doctrine.

352. Mormonism and the Christian Tradition. (2:2:0) (G-R)
A study of historical Christianity from its inception through the apostasy and reformation to the present.

353. American Christianity and the Rise of Mormonism. (2:2:0) Home Study also. (G-R)
A study of the historical roots and beliefs of the major Christian faiths of America, with an emphasis on the historical setting of Mormonism.

362. (Geneal.—Relig.) Genealogy and the LDS Family. (2:2:0) (G-R) Prerequisite: Relig. 261.
A survey course in methods of research, indexes, filing, records, family histories, and family organizations. (Refer to the Genealogy section of this catalog for additional courses.)

365. Applying Gospel Principles in Church Youth Programs. (2:2:0) Home Study also. (G-R)

370. Introduction to Religious Education. (2:2:0) (G-R)
An introductory study of the philosophy, objectives, subject-matter areas, and related problems associated with religious education at the secondary level.

390R. Special Studies in Religion. (1:1:0)

471. Teaching the Scriptures. (2:2:0) (G-R) Prerequisite: consent of instructor.
Designed for prospective seminary teachers.

490R. Senior Seminar in Religion. (1:1:0) (G-R)

491R. Senior Seminar in Religion. (1:1:0) (G-R)

524, 525. Analysis of the Doctrine and Covenants I, II. (3:3:0 ea.)

530. LDS Theology. (2:2:0)

535. Mormonism and Modern Scientific Thought. (2:1:2) (m)

540R. Special Topics in Church History and Doctrine. (2-3:2-3:0 ea.)
Topics including Joseph Smith's thought, LDS theology, schismatic movements in Mormon history, historical setting of Mormonism, comparative American religions, Near Eastern religions, etc.

541. Documents of LDS Church History (1820-1839). (3:3:0)

542. Documents of LDS Church History (1839-1850). (3:3:0)

543. Documents of LDS Church History (1850-1900). (3:3:0)

544. Documents of LDS Church History (1900 to Present). (3:3:0)

546. Social, Economic, and Political Thought of Joseph Smith. (2:2:0)

547. Historical Setting of Mormonism. (3:3:0)

551. History of the Early Church through the Fourth Century. (3:3:0)

552. Medieval and Reformation Christianity. (3:3:0)

553. History of the Christian Church since the Seventeenth Century. (3:3:0)

555. Comparative World Religions. (2:2:0)

556. Comparative World Religions. (2:2:0)

570. Survey of Religious Education. (2:2:0)

571, 572. Methods of Teaching Religion in Secondary Schools. (2:5:0 ea.)

579A,B,C,D,E. Seminar: Gospel Principles in the Scriptures and Church History. (2:5:0 ea.)
A—Old Testament; B—New Testament; C—Book of Mormon; D—Doctrine and Covenants; E—Church History.

595R. Graduate Seminar. (1-2:2:0 ea.)
Discussions on religious topics of current interest. Primarily for graduate students not majoring in religion.

596R. Graduate Seminar. (1-2:2:0 ea.)
Discussions on religious topics of current interest. Primarily for graduate students not majoring in religion.

624R. Seminar: Doctrine and Covenants. (1-6:1-2:0 ea.)

628R. Readings in Modern Scripture. (1-6:1-2:0 ea.)

638R. Readings in Christian Theology. (1-2:Arr.:0 ea.)

640R. Graduate Seminar in Church History and Doctrine. (1-6:1-2:0 ea.)

643. Schismatic Movements in Mormon History. (2:2:0)

647. LDS Church History by Travel Study. (2:Arr.:Arr.)

648R. Readings in LDS Church History. (1-6:1-2:0 ea.)

649R. Seminar: History of Religion. (1-6:1-2:0 ea.)

650R. Readings in Church History and Doctrine. (1-6:0:0 ea.)

657. Comparative Studies in American Religions. (3:3:0)

658R. Readings in Christian History. (1-6:1-2:0 ea.)

659R. (Hist.-Relig.) Seminar in History of Asian Religion. (1-6:1-2:0 ea.)

668R. Readings in the History of World Religions. (1-6:1-2:0 ea.)

671. Curriculum of Religion in Secondary Schools. (2:5:0)

672. Religious Curriculum Building for Secondary Schools. (2:5:0) Prerequisite: Relig. 671.

673, 674. Methods of Teaching Religion in College. (2:5:0 ea.)

675. Curriculum of Religion in College. (2:5:0)

677. Problems of Teaching Religion. (1:3:0)

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

799. Ph.D. Dissertation. (Arr.)

Sociology

Professors: Bahr, Bradford, Christiansen, Duke, Larsen, Peterson, Smith, Staley, Warner.
Associate Professors: Albrecht, Blake, Chadwick, Condie (Chairman, 183 FOB), Craig, DeHoyos, Gibbons, Kunz, Seggar, Spencer.
Associate Professors: Albrecht, Blake, Chadwick, Condie, Craig, DeHoyos, Gibbons, Kunz, Seggar, Spencer.
Assistant Professors: England, Pearson.
Instructor: Johnson.

The curriculum of the Department of Sociology is designed to provide (1) training for students who intend to pursue graduate work in sociology or social work, (2) preparation for students to enter various social agencies utilizing either applied sociology or preprofessional social work courses, (3) a background for students looking for a broad liberal arts education, (4) support for many different academic departments which have a concern for understanding social behavior, (5) training in the discipline of sociology for prospective secondary teachers of sociology and social sciences, and (6) a perspective of social sciences and the role of sociology as one of the central social sciences.

Undergraduate Majors and Minors

Two majors are offered in the Department of Sociology leading to the Bachelor of Science degree: sociology and social work. A minor is also offered in sociology.

Sociology

The undergraduate curriculum is organized into four tracks. Students entering the department may select from one of the following: (1) professional sociology, (2) applied sociology, (3) general sociology, and (4) secondary teaching (see Education Department).

This four-track approach provides students with a great deal of flexibility as they work out their educational programs in consultation with their advisers. Students should seek the kind of electives that will enable them to explore areas supportive of their future occupations.

Professional Sociology. Students who select the professional sociology track should plan to obtain an advanced degree and become professional sociologists—experts who will teach, conduct, research, write, consult, etc.

Applied Sociology. Students who select the applied sociology track should have a primary interest in utilizing sociological knowledge rather than in producing new knowledge. Such diverse occupational endeavors as community planning, industrial relations, governmental service, crime control, recreation, and others, might be included under applied sociology. The applied sociologist will learn to act as an agent of change with small groups, organizations, communities, and even regions or nations, depending upon the type of employment contemplated. Opportunities for people skilled in the applied sociological knowledge and techniques to the solution of contemporary problems are available in the United States as well as in developing nations.

General Sociology. Students who select the general sociology track are, in effect, selecting sociology in order to provide themselves with a broad liberal arts background. They should have as some of their occupational goals such areas as business, work within various social agencies, or even preparation for marriage and parenthood. This track would also be helpful for students who are preparing to do further study in law, medicine, or dentistry.

Secondary Teaching. Students who desire to prepare themselves for employment in secondary schools should select this track. In order to do this, it is necessary that they be certified. An outline of the requirements for secondary school certification is given in the Department of Education section of this catalog. Students should be familiar with the requirements listed there.

Requirements for Majors

Required Core. Students who enter any of the tracks are required to take the following courses: Sociol. 111, 205, 211, 300, 320, and 350, and the other electives in sociology for a minimum total of 33 hours. All undergraduate sociology majors are required to pass each core course with a grade of C (2.0) or higher in order to have these courses count toward completion of graduation requirements.

Other Required Courses. In addition to the required core, students majoring in sociology are required to take the following courses related to their tracks.

Professional Sociology. In addition to the required core, students are encouraged to select courses that will most adequately prepare them for their future occupations or professions. The recommended electives are Sociol. 112, 245, 330, 380, 411, and 412.

Applied Sociology. In addition to the required core, students are encouraged to select courses that will most adequately prepare them for their future occupations or professions. The recommended electives are Sociol. 115, 330, 380, 412, and 430.

General Sociology. In addition to the required core, students are encouraged to select courses that will most adequately prepare them for their future occupations or professions. The recommended electives are Sociol. 115, 340, 370, 411, and 412.

Secondary Teaching. Students selecting this track are required to take, in addition to the core courses, Sociol. 112, 526, and either 330 or 380. Other courses selected as electives must be from the following list: Sociol. 115, 223, 245, 340, 352, 357, 381, 383, 389, 411, 412, and 471. Secondary teaching majors are also required to take Ed. 476 and Health 362.

Lists of suggested course sequences for all of the tracks are available from the office of the Department of Sociology. These lists cover all four years necessary for the undergraduate degree and include a variety of options students might wish to consider.

Undergraduate Minors in Sociology

Sociol. 111 is recommended and a total of 15 hours is required—which the student may choose himself according to his area of interest. For a secondary education minor, see Sociology under the Education section of this catalog.

Courses

111. Introductory Sociology. (3:3:0) Home Study also. (G-SS m)

Foundation course designed to give groundwork for all sociological study. Presents general view of how social organization affects human behavior.

112. Modern Social Problems. (3:3:0) Home Study also. (G-SS m)

Analyzes forces in society which produce such modern social problems as war, crime, divorce, suicide, race friction, etc., and focuses attention on alleviation and prevention programs.

115. Applied Sociology. (3:3:0) Home Study also. (G-SS m) Blake, Peterson
Sociological principles and findings in such fields as teaching, business and industry, nursing, military life, and medicine.

205. Applied Social Statistics. (3:3:0) Home Study also. (m) Christiansen, England, Johnson
Elementary statistical procedures, emphasizing descriptive techniques and interpretation of statistical data.

211. Sociological Analyses. (3:3:0) (G-SS m) Condie, Staley
Different approaches to the analysis of social groups and society.

223. Racial and Minority-Group Relations. (3:3:0) (G-SS m) Seggar
Social relations among ethnic, racial, and religious groups.

245. World Populations. (3:3:0) (G-SS m) Bahr, Kunz
The relationship of population factors to important problems encountered in education, labor, government, and other facets of modern life.

300. Methods of Research in Sociology. (3:3:0) (G-SS m) Prerequisites: Sociol. 111 or equivalent or consent of instructor.
Tools of research (surveys, experimental design, content analysis, scale construction) and electronic data processing and analysis.

315R. Field Experience in Applied Sociology. (1-3:1-3:2-6 ea.) Prerequisite: previous completion of or concurrent registration in Sociol. 115. Craig, Seggar, Staley
Practical experience with community organizations; concurrent seminars to examine relationships between theory and practice of applied change.

320. Social Organization. (3:3:0) (G-SS m) Prerequisite: Sociol. 111. Bradford, DeHoyos
Analysis of generalizations derived by sociology concerning how social interactions, groups, institutions, roles, statuses, and culture affect human behavior.

325. Introduction to the Society of Religion. (3:3:0) (G-SS m) Prerequisite: Sociol. 111. Seggar, Staley
Factors influencing the origin, growth, and organizational development of religious systems.

329. Medical Sociology. (3:3:0) (G-SS) Prerequisite: Sociol. 111 or Psych. 111. Condie, Johnson
Social epidemiology, the sick role, sociocultural definitions of and responses to illness, and the organization of medical-health delivery systems.

330. Theory of Social Change and Modernization. (3:3:0) (G-SS m) Prerequisite: Sociol. 111. Craig, Larsen, .Spencer
Factors, processes, and directions of social change and modernization in contemporary society from diverse theoretical points of view.

350. (Sociol.-Psych.) Introduction to Social Psychology. (3:3:0) Home Study also. (G-SS m) Prerequisite: Sociol. 111 or Psych. 111. Blake, Seggar
Nature of social influences; socialization; concept of norm; role and status; development of beliefs and attitudes; leadership; group processes.

351. Analysis of the Communication Process. (2:2:0) (G-SS m) Prerequisite: Sociol. 111. Blake
Selected social effects of the communication process.

352. Collective Behavior. (2:2:0) (G-SS m) Blake, Larsen
Mass behavior: lynching mobs, riots, and crowds.

357. (Sociol.-Psych.) Interpersonal Growth and Group Processes. (3:1:4) Home Study also. (G-SS m) Spencer
Individual study of the processes that facilitate more effective interpersonal relationship and group functioning.

360. Marriage and the Family in American Society. (2:2:0) Home Study also. (G-SS m) Bradford
Effects of American society upon successful marriage and family living. Formerly Sociol. 340.

370. The Sociology of Urban Life. (3:3:0) (G-SS m) Prerequisite: Sociol. 111. Staley
Norms, social controls, and social processes in urban social life in both historical and contemporary perspectives.

380. Deviance and Social Control. (3:3:0) (G-SS m) Prerequisite: Sociol. 112. Larsen, Smith
Theories of deviance; programs for prevention and treatment, with emphasis on types, techniques, and consequences of social control programs.

381. Introductory Criminology and Penology. (3:3:0) Home Study also. (G-SS m) Smith, Symons
Nature and extent of criminal behavior; current theory and research related to causes of crime and treatment of criminals.

383. Juvenile Delinquency. (2:2:0) Home Study also. (G-SS m) Prerequisite: Sociol. 111. DeHoyos, Smith, Symons
Lawlessness of children and adolescents: causation, treatment, prevention, and outlook.

389. Social Aspects of Mental Health. (3:3:0) (G-SS m) Home Study also. Christiansen, Staley
Personality disorders and emotional maladjustments which originate in group life; social causation, treatment, and prevention of mental ills.

398R. People and Cultures around the World. (1-3:Arr.:Arr. ea.) Home Study also. (G-SS)
Analyzes the principal sociological aspects of those societies included in the BYU Travel Study tours. Limited to participants in BYU Travel Study Programs.

411. Development of Sociological Theory. (3:3:0) (G-SS m) Prerequisites: Sociol. 211 and 300. DeHoyos, Duke
Development of prominent sociological theories and the contributions of outstanding theorists.

412. Contemporary Theory. (3:3:0) (G-SS m) Prerequisites: Sociol. 211, 300, and 411. DeHoyos, Duke
Contributions to and trends in sociological theory since 1950.

421. Complex Organizations. (3:3:0) (G-SS m) Prerequisites: Sociol. 211 and 300. Kunz, Warner
Theoretical approaches and empirical studies of complex organizations such as industries, military, university systems, hospitals, etc.

430. Planned Change and Community Organization and Action. (3:3:0) (G-SS m) Prerequisite: Sociol. 330. Spencer
Prescriptive models and strategies of planned change.

504. Mathematical Sociology. (3:3:0) (G-SS m) Prerequisite: Math. 105. England
Mathematical techniques of simulating and modeling social processes.

522. Social Stratification. (3:3:0) Prerequisite: Sociol. 111. DeHoyos, Duke
Status, class, and power systems in various societies.

525. Sociology of Religion. (2:2:0) (m) Seggar, Staley
Influences of social factors in the development of various religious systems.

526. Sociology of Education. (2:2:0) (G-SS m) Craig, Smith
Social origins of goals and curricula; theories of change and control; and the nature of achievement in education.

552. Personality: Culture and Society. (3:3:0) (m) Prerequisite: Sociol. 111 or Psych. 111. DeHoyos, Staley
The role of culture and society in the forming and functioning of personality. Compares various peoples and cultures.

555. (Sociol.-Psych.) Group Dynamics. (3:3:0) (m) Prerequisite: Sociol. 350. England

560. The Family Institution. (3:3:0) (m) Bradford
Formerly Sociol. 540. Christiansen
The family in several different societies, and problems created by various family systems.

590R. Special Topics in Sociology. (1-3:1-3:0 ea.) (G-SS m) Prerequisite: consent of instructor.

595R. Directed Readings. (1-3:0:2-6 ea.) (m)

600. Advanced Research Methods. (3:3:0) Prerequisite: Sociol. 300 or consent of instructor. Chadwick, Johnson

601. Seminar in Survey Research. (3:3:0) Prerequisite: Sociol. 300 or equivalent; graduate standing in sociology or allied discipline. Chadwick, Christiansen, Johnson

602. Experimental Design in Sociology. (3:3:0) Prerequisites: Sociol. 300 or equivalent graduate standing in sociology or allied discipline. England

606. Intermediate Statistics. (3:3:0) (m) Prerequisite: Sociol. 205. England

610. Seminar in Contemporary Sociological Theory. (3:3:0) Prerequisites: Sociol. 411 and 412. DeHoyos, Duke

611. Seminar in Sociological Theory Building. (2:2:0) Prerequisite: Sociol. 610. Peterson

612. Seminar in the Development of Sociological Theory. (2:2:0) Prerequisite: Sociol. 610. Duke

620. Theory and Research in Social Organization. (6:6:0) Prerequisite: Admission to graduate sociology program, others in graduate program by consent of instructor. Warner, Bahr

623. Seminar in Race and Ethnic Relations. (3:3:0) Chadwick

630. (Sociol.-Psych.) Attitude Change. (3:3:0) Prerequisite: graduate standing or consent of instructor. Blake, Larsen

650. Advanced Social Psychology. (3:3:0) Prerequisite: Admission to graduate sociology program, others in graduate program by consent of instructor. Albrecht

650R. (Sociol.-Psych.) Theory and Research in Social Psychology. (3:3:0) Prerequisite: Sociol.-Psych. 350. Larsen, Seggar

660. Familial Role Structure. (3:3:0) Prerequisite: Sociol. 360. Formerly Sociol. 640. Bradford, Kunz

670. Contemporary Urban Social Structure. (3:3:0) Prerequisite: Sociol. 370. Staley

681R. Seminar in Deviance, Crime, and Corrections. (3:3:0) (m) Prerequisites: Sociol. 111 and 381. Smith, Symons

697R. Directed Research. (1-3:0:2-6 ea.)

699. Thesis for Master's Degree. (Arr.)

700. Sociological Measurement. (3:3:0) Prerequisites: Sociol. 600, 606, 706. England, Johnson

706. Advanced Statistical Methods. (3:3:0) Prerequisite: Sociol. 606. England

711. Sociological Theory and Theory Building. (3:3:0) Prerequisites: Sociol. 600 606, 610, and 8 hours additional sociological theory. Duke

720R. Seminar: Social Organization. (1-3:1-3:0 ea.) Prerequisites: Sociol. 111 and 320. Kunz, Warner

750. Seminar: Social Psychology. (3:3:0) Prerequisites: Sociol. 350 and consent of instructor. Blake, Larsen

799. Dissertation for Ph.D. (Arr.)

Social Work

Program Director: W. Eugene Gibbons (142 FOB)

The curriculum of the Social Work Program is designed to meet the following objectives:

1. Provide for immediate entry into employment at the bachelor degree level of social work practice.
2. Prepare students for graduate professional social work education and postgraduate effort.
3. Assist students for other graduate professional programs where the principles of social work practice are utilized.
4. Encourage social understanding and personal development in preparation for the responsibilities of family life, church service, community leadership, and basic citizenship.
5. Equip students to move forward objectively, evaluate life realistically, and prepare them to be responsible change agents.
6. Recruit prospective social workers.
7. Strengthen the profession of social work.
8. Encourage cross-fertilization in behavioral disciplines.

The undergraduate major in social work seeks to prepare students for immediate job placement in beginning-level positions in such agencies as family services, juvenile court, vocational rehabilitation, adult probation and parole, Bureau of Indian Affairs, Red Cross, child welfare, mental health, corrections, youth rehabilitation, Community Action, etc. A majority of the positions are available in county, state, and federal programs and are often subject to legislative selection and support. With the exception of private agencies, most positions are subject to and protected by Merit Entrance Examinations. The curriculum also leads to greater professionalization found in the training of graduate schools of social work and related disciplines.

Required Courses. Students in social work are required to take Sociology and other recommended electives in sociology and social work for a minimum total of 33 hours. In addition to the required sociology courses, students majoring in social work are also required to take Sociol. 360, 362, 364, 366, and 460R. An approved field experience (460R) is required of all students in their junior or senior year. A minimum of 300 hours of social service agency experience is necessary for graduation, and 5 semester hours of credit are given for each 150 hours of field experience. It therefore requires two full semesters of field experience to satisfy the requirement. Summer social service employment may qualify for credit; however, arrangements and approval must be obtained prior to the experience or no credit can be given. A social work major also requires an approved minor. Suggested minors are psychology and child development and family relationships. Other minors are accepted only through consultation with the student adviser.

Application to Major in Social Work. Students are admitted as majors only upon formal application and after an interview with one of the program faculty. Admission may be requested anytime after the third semester of a student's college work. Application must be made no later than eight weeks before the semester in which the student desires to enroll in Sociol. 460R. When a student is formally accepted as a major, his course sequence is then outlined for the entire program and a minor is approved. Without clearance, a student cannot register for the required field experience (460R).

Social Work Minor. Social work is not offered as a minor.

Courses

360. Introduction to the Field of Social Work. (3:3:0) Home Study also. (G-SS m) Prerequisite: Sociol. 111 or 112. Gibbons, Pearson
Analyzes the institution of social welfare and the profession of social work.

362. Introduction to the Social Services: Individual. (3:3:0) (G-SS m) Prerequisite: Sociol. 360. Gibbons, Pearson
Basic values, principles, and techniques employed in providing social casework services.

364. Introduction to the Social Services: Group. (3:3:0) (G-SS m) Prerequisite: Sociol. 362. Gibbons, Pearson
Philosophy, principles, and dynamics of social group work.

366. Social Legislation. (3:3:0) (G-SS m) Pearson
Process and impact of social legislation and law upon social services.

390R. Special Topics in Contemporary Social Work. (1:3-:1-3:0 ea.) (G-SS m) Prerequisite: consent of instructor.
Course content varies from year to year.

460R. Field Experience in Social Work. (5:2:10 ea.) Prerequisites: 9 hours of sociology plus Sociol. 360 and 362 or 364 (360 not to run concurrently).
Practical experience in social service agencies plus seminars to examine the relationship between theoretical concepts and practice.

Statistics

Professors: Carter, Feulkner, Hilton (Chairman, 204 TMCB), Nielson, Richards.
Associate Professors: Beus, Crandall, Hendrix, Rencher.
Assistant Professors: Bryce, Christensen.

Objective decision making in the face of uncertainty is the challenge facing everyone in today's world. Utilizing such methods as the design and analysis of experiments, survey sampling, regression analysis, operations research, and probability theory, the statistician is able to make decisions that are useful to the social scientist, the biologist, the ecologist, the economist, and all people who collect data. Typical decisions might be the predicted outcomes of the upcoming election, the best combinations of treatments to increase yields (responses), a sampling scheme for incoming goods to locate bad lots, etc.

The curriculum in statistics is designed to (1) equip students with these kinds of decision-making skills for careers as professional statisticians in industrial organizations, government agencies, universities, and research institutes, and (2) to provide an integrated series of courses that will serve the entire University by providing technical tools which can be applied in many subject matter areas.

The bachelor's degree in statistics is offered in both the College of Physical and Mathematical Sciences and the College of Business. The Master of Science degree in statistics is also offered, along with both an undergraduate and a graduate minor.

Requirements for a Major in the College of Physical and Mathematical Sciences

1. Stat. 221 (or 321 or 322), 336 (or 330), 337, 436 or 536, 520, 521, 522 or 541, 531 or 534, plus two additional classes from 432, 433, 434, 436, 522, 531, 534, 536, 541.
2. Math. 111, 112, 113, 214 or equivalent. It is recommended that the students who plan to do graduate work in statistics take Math. 315.
3. Twelve hours in an approved area, including Comput. Sci. 131 or equivalent.

Requirements for a Major in Statistics in the College of Business

1. Stat. 221 (or 321 or 332), 330 (or 336) 337, 433, 436 or 536, 520, 521, 531 or 534, plus two additional classes from 432, 433, 434, 436, 522, 531, 534, 536, 541.
2. Math. 111, 112, 113, 214, or equivalent.
3. Acctg. 201, 202, 342; Bus. Mgt. 341, 301 or Econ. 353; Comput. Sci. 131 or 133A,B; Econ. 110; Org. Behav. 321.

Requirements for a Minor in Statistics

A total of 14 hours, including Statistics 221 and 336 or their equivalent and three other courses numbered 337 or above.

Graduate Degree

The Department of Statistics offers courses leading to the Master of Science degree in statistics. For complete details, see the **Graduate School Catalog.**

Suggested Course Outline for Undergraduate Degree

Since many students do not become acquainted with statistics until after they enter the University, the following programs show how a major in statistics can be obtained by starting at the beginning of the freshman, the sophomore or the junior year. Those few students who may desire to enter the program as seniors should consult the department. Each of these schedules assumes an appropriate background in mathematics. Other courses may be substituted for some of the courses below, depending on the needs and interests of the individual student.

Freshman Entry

First year: 221 or 332.
Second year: 336, 337.
Third year: 433, 434, 520, 521, 522.
Fourth year: 531, 536, 541.

Sophomore Entry

Second year: 221, 330, 337.
Third year: 520, 521, 433, 434.
Fourth year: 436, 522, 531.

Junior Entry

Third year: 221, 330, 337, 520, 521, 522.
Fourth year: 432, 434, 534, 536.

Courses

221. Principles of Statistics. (3:3:1) (G-PS, ML) Prerequisite: Math. 111, 105, or equivalent.
Frequency distributions; elementary probability; estimation and inference about means and variances; contingency tables; regression; correlation.

241. Elementary Probability. (2:2:0) Home Study also. (G-ML) Prerequisite: Math. 111 or 105. Recommended: Stat. 221, 322, or 332.
Combinations; permutations; binomial, Poisson, multinominal, and hypergeometric distributions; combinatorial probability.

321. Elements of Mathematical Statistics. (3:3:0) (G-ML m) Prerequisite: Math. 112 or equivalent.
Probability; random variables; frequency distributions; estimation and tests of hypotheses from a theoretical standpoint. For nonstatistics majors.

330. Statistical Methods Used in Business. (3:3:0) (G-ML) Prerequisite: Stat. 221 or 332 or equivalent.
Time series; forecasting; multiple regression and correlation; index numbers; sample survey methods; Bayesian decision theory; quality control.

332. Statistical Methods Used in Engineering. (2:2:0) (G-ML) Prerequisite: Math. 214 or equivalent.
Same topics as Stat. 221; uses calculus and stresses methods.

336. Statistical Methods Used in the Sciences I. (3:3:0) (G-ML) Prerequisite: Stat. 221 or 332 or equivalent.
Estimation and tests of hypotheses; sampling; multiple regression; partial correlation.

337. Statistical Methods Used in the Sciences II. (3:3:0) (G-ML) Prerequisite: Stat. 330 or 336.
Analysis of variance and covariance; multiple covariance; introduction to experimental design and the analysis of unbalanced data for the fixed model.

432. Quality Control and Industrial Statistics. (3:3:0) (G-ML) Prerequisite: Stat. 221 or 332. Recommended: Stat. 330 or 336.
Acceptance sampling; rectifying inspection; control charts.

433. Operations Research I. (3:3:0) (G-ML) Prerequisites: Math. 109 or 112; Stat. 221.
Methods of linear and dynamic programming; inventory and replacement models; queuing theory; game theory; PERT and CPM and simulation.

434. Operations Research II. (3:3:0) (G-ML) Prerequisites: Math. 109 or 112; Stat. 221.
Theory underlying methods presented in Stat. 433; integer and nonlinear programming; related topics.

436. Nonparametric and Categorical Data Analysis. (3:3:0) (G-ML m) Prerequisite: Stat. 337.
Analysis of categorical data including survey and questionnaire data; nonparametric analogues of classical statistical methods.

501. Statistics for Research Workers I. (5:4:3) Prerequisite: Math. 105 or equivalent.
Probability; estimation; tests of hypotheses; regression; analysis of variance; nonparametric methods. For natural or social science students.

502. Statistics for Research Workers II. (5:4:3) Prerequisite: Stat. 501 or equivalent.
Analysis of covariance; multiple regression; linear models; design of experiments; sampling. For natural or social science students.

520, 521. Theory of Statistics I, II. (3:3:0 ea.) Prerequisite: Math. 214 or equivalent.
Development of the theory of discrete and continuous distribution functions, including derived sampling distributions; tests of hypotheses and point and interval estimation.

522. Theory of Linear Models. (4:4:0) Prerequisite: Stat. 521.
Linear hypotheses, with application to regression and design.

531. Experimental Design. (3:3:0) Prerequisite: Stat. 337 or 501.
Randomized blocks, Latin squares, factorial designs, fractional replication, confounding, and incomplete blocks.

534. Sampling. (3:3:0) Prerequisite: Stat. 337 or equivalent.
Systematic, simple random, stratified, and cluster sampling; optimum allocation; ratio estimation; etc. Applications to various fields.

536. Regression Analysis. (3:3:0) Prerequisite: Stat. 337 or 501.
Multiple regression; introduction to model building and nonlinear estimation; examination of residuals; stepwise regression; Hocking-Leslie algorithm.

541. Advanced Probability. (3:3:0) Prerequisite: Math. 214. Recommended: completion of or concurrent registration in Stat. 520.
Advanced combinatorial methods· random walk; introduction to Markov chains and stochastic processes.

552. Statistical Methods of Education I. (3:3:0) Prerequisite: consent of instructor.
Measures of central tendency, variability; correlations; introduction to probability and statistical inference. Computer usage stressed. For majors in education and related fields.

554. Statistical Methods in Education II. (3:3:0) Prerequisite: Stat. 552.
Educational computer applications of analysis of variance and covariance, multiple and partial regression and correlation, nonparametric methods. Introduction to experimental design.

591R. Graduate Seminar in Statistics. (1:1:0 ea.)

611. Multivariate Statistical Methods. (3:3:0) (m) Prerequisite: Stat. 337 or 501.

621. Advanced Theory of Statistics. (3:3:0) Prerequisites: Math. 315; Stat. 521. Recommended: Stat. 522.

631. Advanced Experimental Design. (3:3:0) Prerequisites: Stat. 521, 531. Recommended: Stat. 522.

632. Advanced Industrial Statistics and Reliability. (3:3:0) Prerequisite: Stat. 432, 521, or equivalent.

636. Advanced Statistical Methods. (3:3:0) Prerequisites: Stat. 337 (or 501), 521.

690R. Special Topics in Statistics. (3:3:0 ea.) Prerequisite: consent of instructor.

695. Reading in Statistics. (1-3:1-3:0) Prerequisite: consent of department.

699. Thesis for Master's Degree. (6-9:Arr.:Arr.) Prerequisite: consent of department.

Technology

Professor: McArthur (Chairman, 435 ESTB).
Associate Professors: Allen, Holt, Mortensen, Simmons, Wilkes.
Assistant Professors: Brown, Mather, Raisor, Smart, Tolman, Whited.
Instructors: Kohkonen, Kunzler, Long, Veenker, Wallace.

The Technology Department offers baccalaureate degrees in engineering technology (design and graphics, electronics, manufacturing) and in industrial technology (building construction and physical plant administration). Associate-degree technician programs are offered in drafting, electronics, electricity, graphic arts, light building construction, material science, and welding.

Two different types of courses are offered to meet the needs of two distinct groups of students: (1) introductory courses for those students desiring a greater understanding of the industrial and technical activity in the world today; and (2) technical courses for those students who wish to prepare for industrial and technical occupations.

These programs are designed to develop successful and productive citizens with a constructive philosophy of life. To receive maximum benefit in minimum time, students should contact the department chairman and be assigned an adviser who will assist them in working out a program of studies.

Engineering Technology

Design and Graphics

Supervisor: E. Max Raisor

The design and drafting technology program, which leads to the Bachelor of Science degree, is accredited by the

Engineers' Council for Professional Development (ECPD) and fully certified by the American Institute for Design and Drafting (AIDD).

Industrial demand for engineering designers and graphics specialists paralleled the beginning of space exploration and prompted the rapid development of baccalaureate programs that produce technically competent individuals well prepared to embrace a great variety of engineering-related jobs. Students in design and graphics technology are exposed to the broad spectrum of engineering design and become proficient in the graphic skills related to that discipline.

In addition to the more traditional employment opportunities associated with engineering, current technological advancements have also brought into focus the practical applications of the computer in engineering design and manufacturing. Through relevent "hands-on" experience, graduates of this program are also prepared for various positions in the expanding field of automated graphics and computer-assisted design techniques.

Specialization

The four-year degree in design and graphics offers a core program with the opportunity to specialize through taking required technical elective courses. Areas suggested for specialization are manufacturing, building construction, management, and computer programming.

Graduation Requirements

In addition to BYU religion and general education requirements, the student must complete the core program and 9 hours of technical electives selected in consultation with his adviser. A minimum grade-point average of 2.0 is required for graduation. A grade of D or lower in the core courses is not acceptable.

High School Preparation

Credit for drafting in high school may be given in lieu of taking Des. Tech. 111. The student should register for Des. Tech. 111 and take an examination, which can permit credit for skills learned in high school. High school drafting, mathematics, chemistry, physics, and industrial shop classes will all be helpful in the program.

Transfer Credit

The student's adviser or program supervisor should be contacted concerning transfer credit. Normally, equivalent work at other schools can be substituted for either core classes or technical electives.

Graduate Study

Opportunity for further education can be arranged through three alternative routes—

1. The M.S. degree in industrial education, permitting further specialization in technology courses
2. The MBA program, permitting the pursuit of management objectives
3. The M-3 Program (M.S.) in mechanical engineering, permitting further specialization in manufacturing areas.

For students wishing to complete the program in four years, the following schedule is provided:

First Year	F	W
Elec. Tech. 100		1
Des. Tech. 111, 211	3	3
ArtDs. 109		2
Mfg. Tech. 131	3	
Math. 121, 122	3	3
Engl. 111	3	
Health 130	2	
Hist. 170		3
Physical education	½	½
Relig. 121, 122	2	2
Des. Tech. 291R	0	0
	16½	14½

Second Year	F	W
Mfg. Tech. 132	2	
Mfg. Tech. 336		3
Elec. Tech. 242		3
Math. 223	3	
Physics 105, 106	3	3
Des. Tech. 212	3	
General education electives	3	4
Physical education	½	½
Religion	2	2
Des. Tech. 291R	0	0
	16½	15½

Third Year	F	W
Des. Tech. 316, 333	4	4
Mfg. Tech. 335, 232	4	3
Des. Tech. 310	4	
General education electives	2	2
Religion	2	2
Des. Tech. 291R	0	0
Comput. Sci. 131		3
Engl. 316		3
	16	17

Fourth Year	F	W
Des. Tech. 435, 437		6
Des. Tech. 434, 436	6	
Mfg. Tech. 491R		1
Technical electives**	6	7
Econ. 110	3	
Religion	1	1
Des. Tech. 219R	0	
	16	15

**Selected in consultation with your adviser.

For students wishing to complete the program in three years, the following schedule is provided:

First Year	F	W	Sp/Su
Des. Tech. 111, 211, 212	3	3	3
ArtDs. 109			2
Mfg. Tech. 131	3		
Elec. Tech. 100	1		
Math. 121, 122, 223	3	3	3
Physics 105, 106		3	3
Engl. 111	3		
Hist. 170		3	
Health 130			2
Physical education	½	½	
Religion	2	2	2
Des. Tech. 291R		0	
	15½	14½	15

Second Year	F	W	Sp/Su
Des. Tech. 310	4		
Des. Tech. 316		4	
Comput. Sci. 131		3	
Mfg. Tech. 132	2		
Mfg. Tech. 335, 336	3		4
Econ. 110	3		
Elec. Tech. 242			3
Depth electives		3	3
General education		3	
Physical education	½	½	
Religion	2	2	2
Des. Tech. 291R	0	0	
Engl. 316			3
	14½	15½	15

Third Year	F	W	Sp/Su
Des. Tech. 434, 435		3	3
Des. Tech. 333, 436, 437	4	3	3
Mfg. Tech. 491R		1	
Mfg. Tech. 232	3		
Depth electives	3		3
General education	3	5	3

Religion	2		
Des. Tech. 291R	0	0	
	15	12	12

Drafting Technician

Adviser: E. Max Raisor

The following associate-degree drafting technician program is offered for those students who do not desire to complete a four-year curriculum. Courses taken in this area are counted toward the baccalaureate degree in design and graphics.

Architectural and mechanical drafting technicians graduating from this program are generally in demand in all areas of scientific research and engineering development. Employment opportunities are available in industry, in architects' offices, and in governmental agencies.

First Year	F	W
Des. Tech. 111, 211, 212	3	6
Elec. Tech. 100	1	
Math. 121, 122	3	3
Engl. 111	3	
Hist. 170		3
Health 130	2	
Biological science and humanities electives	3	3
Relig. 121, 122	2	2
Des. Tech. 291R	0	0
	17	17

Second Year (Mechanical Drafting Option)	F	W
Des. Tech. 310, 410	4	2
Des. Tech. 311, 355	2	3
Elec. Tech. 242		3
Math. 223	3	
Physics 105, 106	3	3
Engl. 316	3	
Econ. 110		3
Physical education	½	½
Religion	2	2
Des. Tech. 291R	0	0
	17½	16½

Second Year (Architectural Drafting Option—Not Prearchitecture)	F	W
Des. Tech. 355, 356	3	3
Des. Tech. 256		3
Ind. Ed. 100	3	
Bldg. Tech. 218, 341	2	2
Civ. Eng. 211		2
Engl. 316		3
Physics 105	3	
Econ. 110	3	
Religion	2	2
Des. Tech. 291R	0	0
	16	15

Courses

104. Drafting for Interior Design. (2:1:1) Tolman
Use of basic drafting instruments, plan development, sections, elevations, shades and shadows, perspectives, and lettering.

111. Introduction to Engineering Graphics. (2-3:2:1) Home Study also.
Fundamentals of the graphic language, including geometric construction, orthographic projection, auxiliary views, sectioning, basic dimensioning, and isometric views, emphasizing sketching.

211. Advanced Mechanical Drafting. (3:3:1) Home Study also. Prerequisite: Des. Tech. 111.
Instruction in techniques of working drawings, precision dimensioning, simplified drafting, SAE and aerospace drafting standards, drafting-room practices, and automated graphics.

212. Engineering Graphics and Descriptive Geometry. (2-3:3:0) Prerequisite: Des. Tech. 111.
Principles of descriptive geometry, including graphical statics and mathematics sliding scales, and nomography.

256. Rendering and Perspective. (3:1:5)
Methods and procedures involved in rendering and drawing one-, two-, and three-point perspectives.

291R. Undergraduate Seminar. (0:2 per month:0)
Required of all undergraduate technology students except those registered for 491R.

310. Professional Graphic Applications. (4:4:0) (m) Prerequisite: Des. Tech. 211.
A course in the specialized application of engineering graphics, including architecture, aircraft, technical illustration, checking procedures, topography, and electronics.

311. Aeronautical Drafting. (2:2:1) Prerequisites: Des. Tech. 310.
Aircraft surface development, lofting theory and application of aircraft coordinate systems, and matrix manipulation. A study of aircraft drafting room manuals and design handbooks.

316. Applied Mechanics. (4:3:2) Prerequisites: Math. 223; Physics 105.
Introduction to statics, strength of materials, and dynamics. Principles of structures, stresses in bending and torsion, and basic concepts of kinematics and kinetics.

333. Applied Dynamics and Kinematics. (4:4:0) Prerequisites: Des. Tech. 316, Math. 223.
Graphical and analytical study of velocity and acceleration problems using Newton's laws of motion.

355. Residential Drafting and Planning. (3:2:4) Home Study also. Prerequisite: Des. Tech. 111 or consent of instructor.
A correlation of good residential drafting techniques with basic principles of efficient house planning. Includes perspectives, plot plan, footing, foundation, floor plans, elevations, sections, and electrical and mechanical installations.

356. Commercial Structure Drafting. (3:1:5) Prerequisite: Des. Tech. 355.
Students design and plan a small commercial building, complete with working drawings. Offered alternate years.

410. Technical Illustration. (2:2:2) Home Study also. Prerequisite: Des. Tech. 310.
Advanced techniques in axonometric drawing, adapted grids, overlays, projection methodology, perspectives, and rendering. Emphasis will be on current industrial trends in product-illustration techniques.

434. Elements of Machines I. (3:2:3) Prerequisites: Des. Tech. 316; Math. 223.
A basic course in design, emphasizing stress analysis, combined stresses, vibrations, and the design and application of machine elements.

435. Elements of Machines II. (3:2:3) Prerequisites: Des. Tech. 333, 434; Elec. Tech. 242; Mfg. Tech. 336; completion of or concurrent registration in Art 109.
An integrated course for advanced students. The student selects a project and completes a design which may employ electronic, pneumatic, hydraulic, and mechanical components.

436. Basic Computer-Assisted Part Programming. (3:3:0) Home Study also.
A basic course in computer-assisted part programming with emphasis on APT.

437. Computer-Aided Drafting. (3:2:2) Prerequisite: Des. Tech. 436.
Techniques, programming, and operation of automated and computer-graphic equipment, including scaling, rotation of view, developments, isometrics, sectioning, information retrieval, and problem solving.

493R. Speed Problems in Drafting. (1-3:Arr.:Arr.) Prerequisite: consent of instructor.

Electronics Technology

Program Supervisor: Merrill J. Smart.

This program is fully accredited by the Engineers' Council for Professional Development. It provides training at the technician (two-year) level, and at the professional (four-year) level in communications, digital electronics, circuit analysis, instrumentation, and real-time programming. This is accomplished through the use of the excellent departmental facilities, which include some of the latest electronic equipment, computer facilities (a real-time computer laboratory and a time-shared computer system), and recording and broadcasting equipment.

Graduates of this program have found positions in a wide variety of industries, including ship building, medical electronics, chemical process control, research laboratories, and the aerospace industries. Graduates are prepared to become responsible members of the technical team at the professional level or as advanced technicians, where electronic equipment is developed, manufactured, maintained, and applied to the needs of industry. The graduate also has special strength in the areas of system maintenance, computer interface design, and real-time programming.

Degrees Granted.

Electronics technology provides the four-year baccalaureate degree program. It also offers the two-year associate degree electronics technician and electrical technical programs.

Specialization

The four-year baccalaureate program provides three areas of specialization: (1) minicomputer applications (with emphasis on real-time programming and software requirements), (2) minicomputer applications (with emphasis on hardware requirements and electronic interfacing), and (3) communications (consumer and industrial).

Graduation Requirements.

In addition to completing the common core and general education requirements, the student must complete one of three approved specialization areas. Technical electives in each of these areas are selected through consultation between student and adviser. A minimum grade-point average of 2.0 must be maintained, and grades of C— or higher are required in all major area classes for graduation.

Cooperative Education.

The Cooperative Education Program (Co-op) is a work-study program in which the student integrates his major course of study with industrial work experience. Qualified students (those who have received prior approval) enroll in Elec. Tech. 300R, Electronics Practicum, and can receive a maximum of 6 hours technical elective credit. A B average in the major area must be maintained for eligibility and continuance in the Co-op Program.

High School Preparation.

Recommended high school courses include physics and algebra. Course work in electronics, electricity, chemistry, and drafting is also desirable.

Transfer Credit.

Students transferring into electronics must meet with an assigned adviser prior to registration for evaluation of technical courses after credit has been granted by the University for those courses. The student receives assistance from his adviser (by appointment) prior to registration or at other times when needed.

Graduate Study.

Opportunity for education beyond the bachelor's degree is offered through (1) the Industrial Education Department (technical teacher option for those who wish to go into postsecondary education), (2) the Department of Business Management (MBA degree), (3) the Computer Science Department (students contemplating this should seek consultation with an adviser as soon as possible), and (4) the Electrical Engineering Department (students who anticipate this should seek consultation with an adviser early in his program).

First Year	F	W
Elec. Tech. 100, 231	1	4
Elec. Tech. 102, 103	3	4
Math. 121, 122	3	3
Engl. 111	3	
Health 130	2	
Hist. 170	3	
Physics 105		3
Relig. 121, 122	2	2
Physical education	½	½
Des. Tech. 291R	0	0
	17½	16½

Second Year	F	W
Elec. Tech. 232, 245	4	3
Elec. Tech. 235, 228	3	3
Elec. Tech. 342, 234	3	2
Math. 223, Elec. Tech. 340	3	3
Des. Tech. 291R	0	0
Religion	2	2
General education	2	3
	17	16

Digital Systems and Minicomputer Specialization

Third Year	F	W
Elec. Tech. 343, 440	3	3
Elec. Tech. 321, 422	3	3
Engl. 316, Math. 224	3	3
Comput. Sci. 132, technical elective	3	3
Religion	2	2
Physical education	½	½
Des. Tech. 291R	0	0
General education	2	2
	16½	16½

Fourth Year	F	W
Elec. Tech. 441, 442	3	3
Mfg. Tech. 491, Des. Tech. 291R	1	0
Computer science elective*	3	
Electronics technology electives	3	3
Religion	1	1
General education	5	9
	16	16

*Select Comput. Sci. 300 or 351.

Communications Specialization

Third Year	F	W
Elec. Tech. 345, 346	3	3
Electronics technology electives	3	6
Engl. 316	3	
Comms. 255, 346	2	2
Des. Tech. 291R	0	0
Religion	2	2
Physical education	½	½
General education	3	3
	16½	16½

Fourth Year	F	W
Elec. Tech. 321, 422	3	3
Electronics technology electives	3	3
Mfg. Tech. 491R, Des. Tech. 291R	1	0
Comms. 456, Elec. Tech. 492R	3	3
Religion	1	1
General education	5	6
	16	16

Compressed Three-Year Sequence of Courses

First Year	F	W	Sp	Su
Elec. Tech. 100, 103, 235	1	4		3
Elec. Tech. 102, 231	3	4		
Math. 121, 122, 223	3	3	3	
Engl. 111, Phys. 105	3	3		
Des. Tech. 291R	0	0		
Hist. 170, Health 130	5			
Relig. 121, 122	2	2	2	
Physical education	½	½		
General education			3	5
	17½	16½	8	8

Second Year	F	W	Sp	Su
Elec. Tech. 342, 228	3	3		
Elec. Tech. 340, 440	3	3		
Elec. Tech. 321, 422	3	3		
Elec. Tech. 232, Comput. Sci. 132	4	2		
Engl. 316			3	
Electronics technology electives			3	3
Des. Tech. 291R	0	0		
Religion	2	2		2
Physical education	½	½		
General education	1	3	2	3
	16½	16½	8	8

Third Year	F	W
Elec. Tech. 234		2
Elec. Tech. 441, 442	3	3
Elec. Tech. 343, 245	3	3
Math. 224		3
Computer science*	3	
Mfg. Tech. 491R, Des. Tech. 291R	1	0
Electronics technology elective	3	
Religion	2	2
General education	2	3
	17	16

*Select Comput. Sci. 300 or 351.

Electrical Technician

Adviser: C. Robert Whited

Electrical technicians are prepared to assist electrical engineers with the more detailed work of their profession. They work as electrical power technicians in power plant operation, power transmission, and distribution; manufacturing of electrical machinery; design and construction of commercial and industrial power systems; and electrical inspecting, estimating, and drafting. They find employment with electrical power generating and distributing companies, telephone companies, government installations, defense plants, and business and industrial concerns. The following associate-degree program provides students with a maximum of practical training to effectively fill the position of electrical technician:

First Year	F	W
Elec. Tech. 100	1	
Elec. Tech. 102, 103	3	4
Engl. 111, Physics 105	3	3
Math. 121, 122	3	3
Relig. 121, 122	2	2
Humanities, Hist. 170	2	3
Health 130	2	
Des. Tech. 291R	0	0
Physical education	½	½
	16½	15½

Second Year	F	W
Elec. Tech. 321, 340	3	3
Bldg. Tech. 341, Elec. Tech. 228	2	3
Elec. Tech. 231, 232	4	4
Mfg. Tech. 131, Engl. 316	3	3
Math. 223	3	
Religion	2	2
Des. Tech. 291R	0	0
	17	15

Electronics Technician

(Accredited by the Engineers' Council for Professional Development)

Adviser: Merrill J. Smart

Electronics engineering technicians are prepared to assist engineers with practical and detailed work in communications, computers, instrumentation, medical equipment, and industrial process controls. This associate-degree program includes the study of electronic theory and circuits, involving electron tubes, transistors and servomechanisms. It is designed to give basic technical training necessary to place the student in the role of a successful electronics engineering technician.

Upon completion of this program, students might find it profitable to transfer to a four-year baccalaureate-degree program in electronics technology or in technical teacher education (see Industrial Education section of this catalog).

First Year	F	W
Elec. Tech. 100, 231	1	4
Elec. Tech. 102, 103	3	4
Math. 121, 122	3	3
Engl. 111, Health 130	5	
Hist. 170, Physics 105	3	3
Des. Tech. 291R	0	0
Relig. 121, 122	2	2
Physical education	½	½
	17½	16½

Second Year	F	W
Elec. Tech. 232, 245	4	3
Elec. Tech. 235, 234	3	2
Elec. Tech. 342, 228	3	3
Math. 223, Elec. Tech. 340	3	3
Humanities, Engl. 316	2	3
Des. Tech. 291R	0	0
Religion	2	2
	17	16

Courses

100. Orientation in Technology. (1:1:0)

Adjusting to college; use of the slide rule and the desk-top calculator. Principles of the basic computing language and professionalism.

102. DC Circuits. (3:2:3) Prerequisite: concurrent registration in Math. 121.

Basic DC circuit theory, including electrical fundamentals, Ohm's law, loop and nodal equations, and network theorems.

103. AC Circuits. (4:3:3) Prerequisites: Elec. Tech. 102 and concurrent registration in Math. 122.

Basic AC and transient circuit analysis, including impedence, reactance, resonance, time constants, AC network analysis, magnetic circuits, and transformers.

228. Electrical Drawing. (3:2:3) Prerequisite: Elec. Tech. 232.

Completion of drawings, and production processes for a student-designed prototype.

231. Electronics I. (4:3:3) Prerequisites: Elec. Tech. 102; Math. 121.

Study of transistor and vacuum tube principles, including semiconductor theory, device characteristics and parameters, basic circuit configurations, and device biasing.

232. Electronics II. (4:3:3) Prerequisites: Elec. Tech. 103, 231; concurrent registration in Math. 223.

Application of linear active devices and integrated circuits in audio, wideband, and power amplifiers; oscillators; power supplies; and regulators.

234. Electrical Trouble Shooting. (2:1:3) Prerequisites: Elec. Tech. 232, 245.
Maintenance and service of electronic equipment; trouble-shooting techniques; and the use of electrical measuring and testing devices.

235. Electronics III. (3:2:3) Prerequisite: Elec. Tech. 231.
Advanced electronics, covering pulse and switching circuits, including discrete and integrated circuits.

242. Electrical Machines and Controls. (3:2:2) Prerequisites: Math. 121; Physics 106 or Ind. Ed. 101.
An introduction to industrial electrical circuits, electrical machines, and controls.

245. General Communications Systems. (3:2:3) Prerequisites: Elec. Tech. 103, 231.
Electromagnetic waves and propagation: antennas, modulation, sound waves, and interference, room equalization, filters, microwave, telemetry, and radar.

300R. Electronics Practicum. (1-3:Arr.:Arr.) Prerequisite: consent of instructor.
Approved cooperative industrial experience of 350 or more hours duration. Students must meet departmental academic requirements. Report required. Six hours maximum applicable toward technical electives.

321. Electrical Control Systems. (3:2:3) Prerequisites: Elec. Tech. 232, 235 and Physics 105.
Introduction to electrical control systems and devices, with emphasis on electrical servomechanisms.

340. Introductory Minicomputer Applications. (3:2:2) Prerequisites: Elec. Tech. 103, 231.
Introduction to minicomputers and PDP-8 assembly language, with applications in electronics circuit solutions using BASIC, FOCAL, and COLPAC.

342, 343. Digital Electronics. (3:2:3 ea.) Prerequisite: Elec. Tech. 235.
Semiconductor pulse and switching circuits including integrated circuits for radar, computer, and digital applications; Boolean algebra; logic circuits; and applications in digital systems.

344. Electronic Instrumentation. (3:2:3) Prerequisites: Elec. Tech. 232, 342.
The design and application of basic instrumentation to automated manufacturing and control processes.

345. Radio/TV Broadcast Systems. (3:2:3) Prerequisites: Elec. Tech. 234, 245.
Commercial circuits and systems, including transmitting equipment, studio generation and control equipment, remote transmitter control, TV cameras, film chains, video tape recorders, and FCC regulations.

346. Audio Communications Systems. (3:2:3) Prerequisites: Elec. Tech. 232, 245.
Operation and testing of transducers, amplifiers, and processing equipment. Measurement of sound levels, noise, and system characteristics. Tape biasing and multichannel and video recording.

422. Linear Integrated Circuits. (3:2:3) Prerequisite: Elec. Tech. 321.
Introduction to linear integrated circuits (IC), including operational amplifiers and other analog IC's.

440. Process Control Computers. (3:2:2) Prerequisites: Elec. Tech. 340.
Instruction sets, assembly languages, and system programming features of small, general-purpose computers as used in industrial process control environments.

441, 442. Real-Time Computer Systems. (3:2:2 ea.) Prerequisites: Elec. Tech. 342, 440.
Characteristics of typical system interfaces between modern control computers and physical plants, and real-time programming techniques to satisfy interface requirements.

443. Data Transmission. (3:2:2) Prerequisites: Elec. Tech. 342, 440.
Interfacing computers to transmission media, characteristics of transmission media, coding and error control, commercial communication channels and services, switching and network concepts.

492R. Special Problems in Electronics Technology. (1-3: Arr.:Arr. ea.) Prerequisite: consent of instructor.
Individual study in an area of special interest in research or design related to electronics or real-time programming.

Manufacturing Technology

Program Supervisor: Dell K. Allen

This four-year baccalaureate degree program is fully accredited by the Engineers' Council for Professional Development (ECPD), and prepares graduates for professional employment in industry's technical and managerial positions. The curriculum is designed to meet individual student needs through common core courses, technical concentrations, and general education electives. Employment projections indicate an increasing demand for graduates technically competent in the manufacturing discipline, many of whom are moving into increasingly responsible managerial positions. Manufacturing has long been the basis of the American economy, and graduates from this area are uniquely educated and trained for assuming positions that will increase the productivity and efficiency of the manufacturing enterprise.

The BYU manufacturing curriculum is nationally recognized as a leader in its field. Excellent equipment and facilities are available for basic and advanced manufacturing processes, destructive and nondestructive testing, compositional and X-ray analysis of materials, computer process control, and instrumentation for process evaluation and applied research.

Specializations. In addition to completing the basic core courses in manufacturing technology, each student is expected to choose a depth sequence of courses in an area of interest to increase his proficiency in that area. Concentrations and suggested courses are—

Manufacturing Systems: Des. Tech. 436; Mfg. Tech. 337, 380, 433, 490R, 495R
Management: Acctg. 201; Bus. Mgt. 361; Org. Behav. 321, 425
Welding: Mfg. Tech. 126, 226, 227, 425, 490R
Design: Des. Tech. 333, 434, 435, 493R
M3 Program (M.S. degree): manufacturing option of mechanical engineering

Graduation Requirements: In addition to common core and general education requirements, the student must complete an approved 12 credit-hour sequence of technical electives. The student (in consultation with his adviser) selects these electives. Cooperative industrial experience in the major field prior to graduation is strongly encouraged. A minimum grade-point average of 2.0 must be maintained for graduation. Grades of D or lower will not be acceptable for courses in the major field.

Cooperative Education: A new option leading to a superior education in the cooperative education program. Qualified students may enroll in Mfg. Tech. 300R, Manufacturing Practicum, and receive 3 hours of credit for each 500 hours of industrial experience with a cooperating company. The coop program must be approved prior to the actual experience. A formal report is required.

High School Preparation: Recommended courses for high school include drafting, machine shop, and algebra. Course work in physics, chemistry, and woodworking are desirable.

Transfer Credit: Students transferring into manufacturing technology are to meet with an assigned adviser for evaluation of technical courses preferably before registration. The student may ask that his adviser help him make a complete schedule of all remaining courses, semester by semester.

Graduate Study: Opportunity for education beyond the bachelor's degree is offered through (1) a manufacturing engineering option of the Mechanical Engineering Department for those who desire additional technical depth, (2) a technical teacher option of the Industrial Education Department for those who wish to go into postsecondary education, and (3) an MBA degree offered through the Department of Business Management.

Sequence of Courses: The following schedule shows the sequence of required and recommended courses. The student may begin by enrolling in any of the 100-level courses. Technical electives or manufacturing practicum courses are usually taken after the student has achieved junior standing in the program.

First Year	F	W
Mfg. Tech. 131, 124	3	3
Mfg. Tech. 132	2	
ArtDs. 109 or Des. Tech. 111	2	
Des. Tech. 211		3
Math. 121, 122	3	3
Engl. 111	3	
Relig. 121, 122	2	2
Elec. Tech. 100	1	
Physical education	½	½
Hist. 170		3
Biological science		3
Des. Tech. 291R	0	0
	16½	17½

Second Year	F	W
Mfg. Tech. 335, 230	4	3
Mfg. Tech. 431	3	
Math. 223	3	
Mfg. Tech. 229		3
Physics 105, 106	3	3
Econ. 110		3
Humanities		2
Religion	2	2
Physical education	½	½
Health 130	2	
Des. Tech. 291R	0	0
	17½	16½

Third Year	F	W
Mfg. Tech. 338, 336	3	3
Mfg. Tech. 332, 225	3	3
Mfg. Tech. 360		3
Mfg. Tech. 232	3	
Elec. Tech. 242		3
Des. Tech. 291R	0	0
Biological science		3
Religion	2	2
Humanities	2	
Social science	2	
	15	17

Fourth Year	F	W
Mfg. Tech. 331		3
Mfg. Tech. 300R or 49BR		3
Des. Tech. 316	4	
Mfg. Tech. 430	3	
Comput. Sci. 131, Mfg. Tech. 491R	3	1
Technical electives*	3	9
Engl. 316	3	
Religion	2	
Des. Tech. 291R	0	
	18	16

Three-Year Curriculum: Under the new 4-4-2-2 calendar, the student may complete the program in three years. For those who desire to complete the program in three years, the following schedule is provided:

First Year	F	W	Sp/Su
Mfg. Tech. 131, 230, 124	3	3	3
Mfg. Tech. 132	2		
ArtDs. 109		2	
Des. Tech. 211			3
Physics 105, 106		3	3
Engl. 111	3		
Biological science			3
Math. 121, 122, 223	3	3	3
Elec. Tech. 100	1		
Social science			2
Health 130	2		
Econ. 110		3	
Religion	2	2	
Physical education	½	½	
	16½	16½	17

Second Year	F	W	Sp/Su
Mfg. Tech. 431, 225, 331	3	3	3
Mfg. Tech. 335, 360, 336	4	3	3
Technical electives*	2	4	
Mfg. Tech. 229	3		
Elec. Tech. 242		3	
Hist. 170	3		
Humanities			4
Religion	2	2	
Biological science			3
Physical education	½	½	
	17½	15½	13

Third Year	F	W	Sp/Su
Mfg. Tech. 338, 232, 430	3	3	3
Mfg. Tech. 332, 491R	3	1	
Mfg. Tech. 300R, or 498R			2
Engl. 316	3		
Technical electives*		3	6
Des. Tech. 316		4	
Comput. Sci. 131	3		
Religion	2	2	2
	14	13	11

***Technical Electives:** Students, in consultation with their advisers, may select a series of upper-division or graduate courses in such areas as manufacturing, welding, design, management, or the M-3 program in preparation for graduate work.

Materials Science Technician

Supervisor: K. S. Mortensen

This associate-degree program trains the student to easily adapt to a position in the industrial laboratory. The areas of training include nondestructive testing, quality control, chemical technology, materials testing and analysis, foundry, welding, drafting, technical writing, metallurgy, material science, and spectroscopy. Graduates are employed as qualified laboratory technicians in the testing laboratories maintained in almost every major industry. The courses taken in this program may be counted in the four-year manufacturing program.

First Year	F	W
Mfg. Tech. 335		4
Elec. Tech. 100	1	
Des. Tech. 291R	0	0
Health 130		2
Hist. 170		3
Math. 121, 122	3	3
Chem. 100	3	
Physics 105		3
Relig. 121, 122	2	2
Des. Tech. 111	3	
Engl. 111	3	
	15	17

Second Year	F	W
Mfg. Tech. 124, 225	2	3
Mfg. Tech. 131, 265	3	2
Mfg. Tech. 132	2	
Social science	2	
Technical electives		3
Comput. Sci. 131	3	
Engl. 316	3	
Mfg. Tech. 232		3
Biological science		3
Religion	2	2
Physical education	½	½
Des. Tech. 291R	0	0
	17½	16½

Welding Technician

Program Supervisor: Lester Long

This program offers comprehensive training for the preparation of welding technicians for industry. It consists of theory and practice in oxy-acetylene, electric arc, resistance, Heliarc, and submerged arc welding. In addition, the program provides training in machine tool processes, metallurgy, technical drawing, and related general education.

With the emphasis on prefabrication, and with the rapid changes occurring in industry, welding has become very technical, requiring the service of individuals with training beyond that of the craftsman. Some of the opportunities available to the welding technician are welding foreman, leadman, supervisor, analyzer, inspector, research specialist, and welding equipment salesman.

First Year	F	W
Mfg. Tech. 131		3
Mfg. Tech. 124, 126	3	3
Elec. Tech. 100	1	
Des. Tech. 111	2	
Mfg. Tech. 132		2
Engl. 111	3	
Math. 121	3	
Relig. 121, 122	2	2
Physical education	½	½
Hist. 170		3
Humanities		2
Des. Tech. 291R	0	0
	14½	15½

Second Year	F	W
Mfg. Tech. 229, 226	3	5
Mfg. Tech. 335, 227	4	3
Eng. Tech. 242	3	
Physics 105	3	
Social science	2	
Religion	2	
Engl. 316		3
Biolgical science		3
Health 130		2
Des. Tech. 291R	0	0
	17	16

Courses

124. Welding Processes. (3:2:4) Long
A general course dealing with theory, application, and economics of various welding processes.

126. Electric Welding Laboratory. (3:0:9) Prerequisite: concurrent registration in Mfg. Tech. 124.
Laboratory experience in arc welding of steel plate, with emphasis on commonly used joints.

131. Production Operations. (3:2:3)
Capabilities and operations of basic machine tools on a production basis. Application and use of inspection gages for quality control.

132. Manufacturing Processes. (2:2:0) (m)
Principles and applications of casting (hot and cold), forming, welding, machining, and finishing. Field trip required.

225. Quality Assurance. (3:2:2) Prerequisite: Mfg. Tech. 124.
A study of the quality assurance functions, including quality control, nondestructive testing, and industrial statistical methods.

226. Electrical Welding. (5:2:8) Prerequisite: Mfg. Tech. 124.
Theory and application of electric welding processes. Includes submerged arc, resistance, stud, and gas-shielded welding and arc cutting.

227. Inert-Gas Welding. (3:1:5) Prerequisite: Mfg. Tech. 126.
Principles and practices of gas-shielded welding of ferrous and nonferrous metals.

229. Metal Forming. (3:2:2) Prerequisite: Mfg. Tech. 132.
Principles and applications of various forming methods: blanking, drawing, benching, extruding, forging, etc.

230. Numerical Control Programming. (3:2:2) (m) Prerequisites: completion of or concurrent registration in Mfg. Tech. 131.
Methods, applications, and limitations in the programming of numerical control machine tools using manual and computer-assisted programming methods.

232. Materials Science—Nonmetals. (3:2:2)
Chemical, physical, thermal, electrical, optical, and magnetic properties of materials in terms of basic atomic structure and bonding.

265. Laboratory Methods in Materials Science. (2:1:3) (m) Prerequisites: Mfg. Tech. 232, 335.
Students will perform laboratory investigations in materials science, including optical spectroscopy, X-ray spectroscopy and diffraction, thermal methods, atomic absorption, wet chemical methods, and related techniques.

300R. Manufacturing Practicum. (1-3:Arr.:Arr.) Prerequisite: consent of instructor.
Approved cooperative industrial experience of 500 hours duration. Open to students who meet departmental academic requirements. Report required. Credit applicable toward technical electives.

331. Cast Metal Processes. (3:2:3) Prerequisites: Mfg. Tech. 132, 335.
Study of melting, pouring, solidification, casting problems, design considerations, and testing as they apply to latest foundry processes. Includes study of automated and computer-controlled foundries.

332. Production Planning. (3:3:0) Prerequisites: Mfg. Tech. 132; Stat. 221; Comput. Sci. 131.
Planning and coordination of manufacturing facilities for economical production. Includes study of material utilization, batch sizes, motion and time studies, scheduling, and plant layout.

335. Introduction to Physical Metallurgy. (4:3:3) Prerequisite: Mfg. Tech. 132.
Properties, testing, heat treating, selection, and use of metals.

336. Basic Fluid Power. (3:2:2) Prerequisite: Math. 121.
A study of hydraulic and pneumatic systems as a means of transmitting and controlling power; component identification and operation, fluid power graphical symbols, circuits, and applications.

337. Advanced Tooling Methods. (2:1:3) Prerequisites: Mfg. Tech. 230, 331, 360.
Advanced methods in the construction and fabrication of molds, dies, and patterns. Emphasis on current application of numerical control and EDM.

338. Machine Tool Performance. (3:2:2) Prerequisites: Mfg. Tech. 131, 335.
Study of cutting tool geometry, tool materials, cutting forces, feed, speed, surface finish, horsepower requirements, cutting fluids, vibration, and machine tool evaluation.

360. Plastics Tooling and Processing. (3:2:3) Prerequisite: Mfg. Tech. 232.
Design, development, and application of plastics tooling.

380. Plant Layout and Materials Handling. (3:3:0) Prerequisites. Mfg. Tech. 332; Comput. Sci. 131.
Theory and practical application of plant layout techniques, with emphasis on materials handling systems.

425. Metallurgy of Welding. (3:3:0) (m) Prerequisites: Mfg. Tech. 124, 232, 335.
Basic metallurgical principles that pertain to welding procedures, and the proper selection of fundamental information enabling prediction of weld behavior.

430. Manufacturing Process Planning. (3:3:0) Prerequisites: Mfg. Tech. 331, 332, 338.
Manufacturing analysis, process capability and selection, operations, equipment specifications and tooling; value analysis, make-or-buy decision, manufacturing economics, estimating, process information and control.

431. Tool Design. (3:2:2) Prerequisites: Mfg. Tech. 131, 132.
Design of special tooling as applied to manufacturing processes.

433. Computer-Aided Manufacturing Systems. (3:2:3) Prerequisite: Mfg. Tech. 332.
Rationale and design of computer-aided manufacturing systems: design criteria, logic, flow diagrams, software and hardware requirements; emphasis on real-time interactive process planning and control.

490R. Special Problems in Manufacturing Technology. (1-3:Arr.:Arr. ea.) Prerequisite: consent of instructor.

491R. Senior Seminar. (1:1:0 ea.) Prerequisite: junior or senior standing.
A seminar designed to further the student's education and professional development by the use of special topics and by contact with personnel from industry.

495R. Special Topics. (Arr.)

498R. Manufacturing Development Laboratory. (2:0:6) Prerequisites: consent of instructor; senior standing in manufacturing technology.
Individual students develop the manufacturing techniques and processes for a selected project to be manufactured. Projects must be approved by instructor.

Industrial Technology

Building Construction

Program Supervisor: Lon J. Wallace

In addition to the basic mathematics and science courses, the Building Construction Technology Program includes instruction in basic woodwork, drafting, cabinet work, house framing, carpentry finishing, plumbing, house wiring, masonry, building materials and methods, applied mechanics, estimating, accounting, economics, and business management.

People who know how to effectively use new techniques as well as traditional building methods are much in demand in the construction industry. The building construction major is planned to prepare graduates to fill this need. Typical positions obtained by graduates are: field men for architects, building material dealers, contractors, building inspectors, and contractor field supervisors.

Completion of this program leads to the Bachelor of Science degree. A two-year associate degree is also possible for those who desire it.

Specializations: The technical electives shown should be filled through consultation with one's adviser. It is intended that one become proficient in a specialized area of his choice. It is highly recommended that these electives include courses in business management or related areas. Suggested courses are shown following the curriculum outline.

High School Preparation: Recommended high school courses include drafting, algebra, trigonometry, and woodworking.

Transfer Credit: Students transferring into the building construction technology program should meet with an adviser prior to enrollment so that accumulation of excessive hours may be avoided.

Graduation Requirements: Besides common core and general education requirements, the student must complete an approved 12-hour sequence of technical electives. Cooperative industrial experience in the major field prior to graduation is strongly encouraged. A minimum grade-point average of 2.0 must be maintained for graduation. Grades of D or lower will not be acceptable for courses in the major field. A student must complete 40 semester hours of upper division credit. It is therefore important that students complete some of these in the general education and technical elective areas.

Sequence of Courses: It is intended that each student follow the sequence of courses as shown below. This will prevent delay owing to unexpected course prerequisites. Courses will be provided during the third semester to enable the student to complete the program in a shorter time if he desires.

First Year	F	W
Ind. Ed. 100, 105	3	2
Ind. Ed. 139	2	
Mfg. Tech. 124		2
Math. 121, 122	3	3
Engl. 111	3	
Hist. 170	3	
Elec. Tech. 100	1	
Econ. 110		3
Health 130		2
Physics 105		3
Relig. 121, 122	2	2
Physical education	½	½
Des. Tech. 291R	0	0
	17½	17½

Second Year	F	W
Ind. Ed. 210	3	
Bldg. Tech. 341, 211, 218	2	4
Des. Tech. 111, 355	2	3
Acctg. 201		3
Physics 106		3
Math. 223	3	
General education	2	
Religion	2	2
Physical education	½	½
Des. Tech. 291R	0	0
	14½	15½

Third Year	F	W
Des. Tech. 316, 212	4	3
Civ. Eng. 211	2	
Engl. 316		3
Technical electives*	5	3
General education	2	5
Religion	2	2
Des. Tech. 291R	0	0
	15	16

Fourth Year	F	W
Bldg. Tech. 410, 411	3	3
Bldg. Tech. 301, 317	3	2
Org. Behav. 321	3	
Des. Tech. 356		3
Technical electives*	4	
Bldg. Tech. 408		3
General education	2	3

Religion	1	1
Mfg. Tech. 491R	1	
Des. Tech. 291R		0
	16	15

*Technical Electives: May be chosen from any technology course; from selected courses in environmental design, industrial design, and botany, or from Ind. Ed. 189, 300, 319, 440, 491R, 535; Bus. Mgt. 361, 461; Org. Behav. 321, 425; Civ. Eng. 321, 471. Also chemistry, economics, physics, or mathematics courses may be selected.

For the benefit of those students who wish to complete the program in three years by utilizing Spring and Summer terms, the following curriculum schedule is provided:

First Year	F	W	Sp/Su
Ind. Ed. 100, 105, 210	3	2	3
Ind. Ed. 139	2		
Mfg. Tech. 124		2	
Bldg. Tech. 341			2
Math. 121, 122, 223	3	3	3
Eng. 111	3		
Econ. 110		3	
Des. Tech. 111			2
Hist. 170	3		
Health 130		2	
Elec. Tech. 100	1		
Physics 105		3	
Religion	2	2	2
Physical education	½	½	½
General education			2
Des. Tech. 291R	0	0	
	17½	17½	14½

Second Year	F	W	Sp/Su
Bldg. Tech. 211, 218	4		
Des. Tech. 355, 316, 212	3	4	3
Civ. Eng. 211		2	
Acctg. 201	3		
Physics 106	3		
Technical electives*		5	3
Engl. 316			3
General education		2	5
Physical education		½	
Religion	2	2	2
Des. Tech. 291R	0	0	
	15	15½	16

Third Year	F	W	Sp/Su
Bldg. Tech. 410, 411	3	3	
Bldg. Tech. 301, 317, 408	3	5	
Des. Tech. 356		3	
Org. Behav. 321	3		
Technical electives*	4		
General education	2	3	
Religion	1	1	
Mfg. Tech.	1		
Des. Tech.		0	
	17	15	

Light Building Construction Technician

Adviser: Lon J. Wallace

Following is a light building construction associate-degree program designed for those students who do not desire to complete a four-year curriculum. Courses taken in this area may count toward the baccalaureate degree if the student later decides to further his education in this area.

This associate-degree program is designed to prepare students to become successful building construction technicians trained in the construction of residential homes and small buildings, where new construction techniques and materials have made radical changes in the last decade. Building construction technicians are employed as assistants to foremen and supervisors or as helpers to contractors and building specialists. Successful experience in this field leads to many opportunities, including positions as building contractors, supervisors, estimators, inspectors, consultants, company managers, appraisers, and building materials salesmen.

First Year	F	W
Ind. Ed. 100, 105	3	2
Ind. Ed. 139	2	
Mfg. Tech. 124		2
Math. 121, 122	3	3
Engl. 111	3	
Hist. 170	3	
Elec. Tech. 100	1	
Physics 105		3
Relig. 121, 122	2	2
Econ. 110		3
Health 130		2
Physical education	½	½
Des. Tech. 291R	0	0
	17½	17½

Second Year	F	W
Ind. Ed. 210	3	
Bldg. Tech. 211		2
Bldg. Tech. 341, 218	2	2
Des. Tech. 355	3	
Bldg. Tech. 317, 410	2	3
Bldg. Tech. 411		3
Civ. Eng. 211	2	
Bldg. Tech. 301		3
Engl. 316		3
Humanities	2	
Religion	2	2
Biological science	2	
Des. Tech. 291R	0	0
	18	18

Courses

211. Carpentry Finishing. (2:1:3)
Practical problems in interior and exterior trim.

218. Plumbing. (2:1:3)
Plumbing and plumbing layout.

301. Cabinetmaking and Millwork. (3:1:5) Prerequisite: Ind. Ed. 100.
Design and construction of cabinets, and study of milling operations.

317. Concrete and Masonry. (2:1:3)
Fundamental study and experience in the preparation and placement of concrete. Practice in laying cinder block, concrete block, and general introduction to masonry.

341. House Wiring. (2:2:2)
Electrical circuits in homes and farm buildings.

408. Building Systems Design. (3:3:0) Prerequisites: Des. Tech. 316, 355; Math. 223.
Study in applied psychometrics, heating and cooling, load estimating, equipment selection, piping design, air distribution, hydronics, basic controls, and specifications for mechanical building-systems design.

410. Construction Materials and Methods. (3:3:0)
Theoretical aspects of buildings, locations, soil conditions, footings, materials, and equipment.

411. Estimating. (3:3:0)
Interpreting plans and specifications. Methods of estimating and figuring costs of materials and labor.

494R. Special Problems in Building Construction. (1-3: Arr.:Arr.) Prerequisite: consent of instructor. Wallace

Specialized Associate-Degree Program
Graphic Arts Technician
Supervisor: Ron H. Jenkins

Printing is one of the major industries in our country today. It is vital to business and industrial organizations, civic and community organizations, and to the social, political, and economic life of our nation. Because of increasingly complex mechanized printing equipment in use today, there is a growing need for technically trained personnel in all areas of printing production and management. The graphic arts technician program prepares students for work in printing and publishing industries, government agencies, manufacturers of paper products, and in the smaller private firms that do their own printing.

First Year	F	W
Ind. Ed. 250, 351	3	3
Physics 177		3
ArtDs. 109, 241	4	
Bus. Ed. 101		2
Engl. 111, 212	3	3
Econ. 110		3
Des. Tech. 111	2	
Health 130	2	
Relig. 121, 122	2	2
Physical education	½	½
Des. Tech. 291R	0	0
	16½	16½

Second Year	F	W
Comms. 263, 264	3	3
Ind. Ed. 451, 452	3	2
Math. 121	3	
Ind. Ed. 453, 454	3	3
Chem. 102		5
Biological science		3
Hist. 170	3	
Religion	2	2
Des. Tech. 291R	0	0
	17	18

Physical Plant Administration

This program prepares one to serve in administrative and supervisory positions in industry and in physical plant departments of universiities and colleges. During the next few years, billions of dollars will be spent for new college construction and campus improvements at nearly two thousand campuses across the nation. This does not include equal or larger sums which will be spent in plant development, maintenance, and operation by private enterprise. The physical plant administration curriculum is designed and offered to train young men for these important positions. Graduates will be well prepared to supervise the programming, planning, and construction of major physical facilities as well as to administer maintenance and operation programs at college and university levels, and in private industry.

Students completing this four-year program receive the Bachelor of Science degree in physical plant administration.

First Year	F	W
Engl. 111	3	
Acctg. 201		3
Econ. 110	3	
Math. 121, 122	3	3
Health 130	2	
Des. Tech. 111		2
Chem. 102		5
Hist. 170	3	
Mfg. Tech. 300R		2
Relig. 121, 122	2	2
Physical education	½	½
Des. Tech. 291R	0	0
	16½	17½

Second Year	F	W
Bot. 205	2	
Civ. Eng. 211		2
Comms. 102	2	
Des. Tech. 355		3
Physics 105, 106	3	3
ArtDs. 109, 346R	2	3
Math. 223	3	
Mfg. Tech. 132	2	
Religion	2	2
Physical education	½	½
Des. Tech. 291R	0	0
	16½	13½

Third Year	F	W
Mfg. Tech. 232	3	
Elec. Tech. 242		3
Comput. Sci. 131	3	
Stat. 221		3
Des. Tech. 256	3	
Micro. 311		2
Engl. 316		3
Org. Behav. 321	3	
Religion	2	2
Humanities	2	
Technical electives		2
Des. Tech. 291R	0	0
	16	15

Fourth Year	F	W
Bldg. Tech. 410, 411	3	3
Mfg. Tech. 491R	1	1
Mfg. Tech. 332	3	
Econ. 361	3	
Bot. 400		2
Bus. Mgt. 361	3	
Geog. 522		3
Des. Tech. 356		3
Ind. Ed. 535		2
Religion	1	1
Des. Tech. 291R	0	0
	14	15

For those who wish to complete the program in a shorter time by utilizing the Spring and Summer terms, the following curriculum schedule is presented:

First Year	F	W	Sp/Su
Engl. 111	3		
Acctg. 201		3	
Bot. 205			2
Econ. 110	3		
Comms. 102			2
Math. 121, 122, 223	3	3	3
Health 130	2		
Des. Tech. 111		2	
ArtDs. 109			2
Hist. 170, Chem. 102	3	5	
Physics 105			3
Mfg. Tech. 300R, 132	2		2
Religion	2	2	2
Physical education	½	½	½
Des. Tech. 291R	0	0	
	18½	15½	16½

Second Year	F	W	Sp/Su
Civ. Eng. 211	2		
Mfg. Tech. 232		3	
Elec. Tech. 242			3
Des. Tech. 256, 355	3	3	
Comput. Sci. 131		3	
Stat. 221			3
Physics 106	3		
Engl. 316			3
Org. Behav. 321		3	
Micro. 311			2
Humanities		2	
Religion	2	2	2
Physical education	½		
Electives	3		3
Des. Tech 291R	0	0	
	13½	16	16

Third Year	F	W	Sp/Su
Bldg. Tech. 410, 411	3	3	
Econ. 361	3		
Bot. 400			
Bus. Mgt. 361	3		
Geog. 522		3	
Mfg. Tech. 491R	1	1	
Mfg. Tech. 332	3		
Ind. Ed. 535		2	
Des. Tech. 356		3	
Religion	1	1	
Des. Tech 291R	0	0	
	14	15	

Theatre and Cinematic Arts

Professors: Gledhill, Hansen, Metten (Chairman, D-581 HFAC), Woodbury.
Associate Professors: Henson, Oaks, Pope, Whitman.
Assistant Professors: Crosland, Frost, Golightly, Jenkins, McKinlay.
Instructors: Walker, Warner.

The theatre and cinematic arts program at BYU is designed to give students a comprehensive experience in the art, production, history, and technical elements of theatre, film, and videotape production. A major purpose is to produce artistic work that is consistent with the teachings of the Savior, work of such high quality that it is sought after. We reject the vulgarity and immorality that permeate most theatre, film, and television today. This concept forces upon us an independence and separation from much of the world of theatre and cinematic arts as they now exist. We strive, however, to be so competent and refreshing that others will wish to emulate us. As well as encouraging theatre, film, and television that is consistent with the ideals of the gospel, we nurture theatre arts that are unique to the gospel. That is, we seek to develop a drama that will inspire, edify, and draw audiences to Christ.

The curriculum is designed to lead to the highest levels of competency in acting, child drama, theatre arts secondary education, directing, liberal arts, playwriting, technical theatre, musical-theatre production, and cinema-videotape production and to prepare interested and qualified students for graduate study.

Students in the program are expected to participate in University Theatre productions. All productions are cast from open tryouts so that all students may have the opportunity of participating. The University Theatre produces an average of 18 faculty-directed productions each year, two of which are major videotape productions in cooperation with KBYU-TV. Also, 100 student-directed stage productions are produced each year. The baccalaureate degree is available, with emphases in theatre arts education, acting, child drama, directing, liberal arts, playwriting, technical theatre, musical-theatre production, or cinema-videotape production. Also, four Associate of Arts degrees are available: church theatre specialist (C T S ASSC), technical theatre specialist (T T S ASSC), costume specialist (CST S ASSC), and performance specialist (PRF S ASSC). Requirements for these AA degrees are listed separately.

Graduate Study. The department offers a challenging program for graduate study leading to the master's degree, and a doctoral degree may be earned in theatre and cinematic arts. Students planning graduate work must apply for admission to the Graduate School at the conclusion of their senior year. Application forms may be obtained at the Office of the Graduate School, B-336 ASB. The requirements for admission are in the **Graduate School Catalog.**

Baccalaureate Degree. All majors seeking a baccalaureate degree in theatre arts except those in theatre arts education will complete the following core of courses (23 hours total):

Theatre 121, 123, 320, 460R, 461R, 564, and 565.

Theatre Arts Laboratory. The theatre arts laboratory is sponsored by the department to provide practical experience and participation in the theatre arts. Attendance and participation are required for many of the classes.

Course Requirements for Acting Emphasis

Those who plan to pursue a career as actors or as teachers of acting on the university level will complete the 23-hour theatre arts core and the following strongly recommended courses (56 hours required):

Theatre 115, 124, 126, 323R, 324R, 325, 362, 378R, 522R (or 524R); plus the following (taken in addition to the general education requirements): art and design (3 hours), humanities (3 hours), English (6 hours), history (3 hours), music (2 hours), and P.E. 110 and 187.

Course Requirements for Child Drama Emphasis

Those who plan to pursue a career in children's theatre and/or creative dramatics at the elementary, secondary, or college level or to work in recreation departments or in connection with community theatres or regional theatre schools will complete the 23-hour dramatic arts core and the following strongly recommended courses (56 hours required):

Ed. 340; Engl. 420; Theatre 115, 126, 360, and 572R, plus the following (taken in addition to the general education requirements): CDFR 210 and Psych. 320 or 321.

Course Requirements for Costume Design Emphasis

Those who plan to pursue a career as a theatre costume designer/costumer will complete the 23-hour theatre arts core and the following strongly recommended courses (56 hours required):

ArtDs. 103, 322R, 342, 344; Clo. and Text. 165, 260, 330, and (if desired) 345; Theatre 126, 362, 420, and 560R.

Course Requirements for Designer-Technician Emphasis

Those who plan to pursue a career as a theatre designer or designer-technician will complete the 23-hour theatre arts core and the following strongly recommended courses (56 hours required):

ArtDs. 102, 103, 237; Ind. Ed. 100, 129, 139, 405; Theatre 126, 362, 420, 560R; Des. Tech. 111; and Ind. Tech. 341.

Course Requirements for Directing Emphasis

Those who plan to pursue a career in directing or who wish a career in teaching and directing at the university level will complete the 23-hour theatre arts core and the following strongly recommended courses (56 hours required):

ArtDs. 102, Theatre 124, 126, 323R, 324R, 417R, 360 (or 572R), 362, 378R, 420; plus the following (taken in addition to the general education requirement): Engl. 343 (or 250) and 382.

Course Requirements for a Liberal Arts Emphasis

A student may elect to earn a baccalaureate degree in theatre arts without emphasis in a specialty. This program is intended to provide a liberal arts approach, leading to a degree in demand among a variety of employers, including graduate schools and related disciplines. The student will complete the 23-hour theatre arts core and the following strongly recommended courses (56 hours required):

Theatre 115, 126, 327R, 417R, 378R, 560R, plus the following (taken in addition to the general education requirements): art and history (3 hours), humanities (3 hours), art and design (2 hours), English (6 hours, preferably dramatic literature), language (3 hours), and music (2 hours).

Course Requirements for Playwriting Emphasis

Those planning a career as a playwright or as a university professor of playwriting will complete the following sequence of courses (acceptance into this program assumes a strong desire to write and to submit manuscripts, at the suggestion of the adviser, to appropriate production companies and contests): the 23-hour theatre arts core and the following strongly recommended courses (56 hours required):

Theatre 373, 378R, 578R; English 218R, 318R, 343, 382; and Phil. 110 and 352.

Musical Theatre Emphasis

Those who plan to pursue a career in the musical theatre as an actor-singer-dancer or as a teacher of musical theatre production on the university level will complete the 23-hour theatre arts core and the following strongly recommended courses (56 hours required):

Theatre 124, 126, 323R, 324R, 325, 522R; Music 105R (or 159R), 165; P.E. 110, 175, 183, 185, 186, 187, 188, 287R; plus 4 hours of electives in music or dance.

Course Requirements for Theatre Arts Education (Secondary Certification)

Majors must complete the following 33 hours of course work:

Theatre 115, 123, 124, 126, 320, 325, 360, 362, 371, 460R, 461R, and 564 (or 565). Theatre 121 is strongly recommended to fulfill humanities requirements.

The teaching major in theatre arts education must complete course requirements leading to certification as outlined by the College of Education (refer to Education section of this catalog). Theatre majors must register for Theatre 377 and 479 in place of Ed. 377 and 479 in the sequence of professional courses outlined by the College of Education.

Minors in theatre arts education, using theatre as a related subject to the major, must complete the following 20 hours of course work:

Theatre 123, 124, 126, 320, 371, 460R, and 461R. Theatre 115, 564 (or 565) are strongly recommended but not required. Minors are required to take Theatre 377 in addition to theatre arts requirements.

Associate of Arts Degree

Each area of specialization includes 32 hours in theatre and cinematic arts, plus the following general education courses: English composition (6), American history (3), health (2), physical education (1), humanities (3), biological sciences (3), physical science (3), and social science (3). Two hours of religion are required per semester in residence, including Spring and Summer terms. Relig. 121 and 122 are required of all students.

Church Theatre Specialist. This associate degree in designed for those who are interested in theatre for enrichment and personal development. A church theatre specialist is a person who may work effectively on the ward, stake, or regional theatre level. This degree in no way supercedes or supplants the bachelor's degree but prepares an individual for an in-depth study in this field. The following courses must be completed:

Theatre 121 (3), 115 (3), 123 (3), 126 (1), 260R (3), 320 (5), 417R (2), 360 (3), 362 (2), 378R (2), 460R (3), and 461R (3) for a total of 32 hours in the major, plus the 32 hours of general education requirements listed previously.

Technical Theatre Specialist. An associate degree in technical theatre from the Department of Theatre and Cinematic Arts qualifies an individual to serve as a technical theatre consultant for community theatre productions or ward, stake, or regional theatre productions of the Church. Study in this field provides a sound foundation in the basics of technical theatre and encourages further study in the area of technical theatre for a bachelor's degree. The following courses must be completed:

Theatre 115 (3), 123 (3), 126 (1), 260R (4), 320 (5), 460R (3), 461R (3); Des. Tech. 111 (2); Ind. Ed. 129 (3); and ArtDs. 102 (2) and 103 (2) for a total of 32 hours in the major, plus the 32 hours of general education requirements listed previously.

Costume Specialist. Persons completing this associate degree will be capable of working as costume consultants for community theatre productions or for Church productions as costume designers and seamstresses capable of creating the costumes they have designed. Their capability also extends to the field of stage makeup and hair styling for wigs and for stage. The following courses must be completed:

Theatre 115 (2), 123 (3), 126 (1), 320 (5), 362 (2), 460R (3), 461R (3); Clo. and Text. 165 (4), 260 (3), 330 (3), and 345 (3) for a total of 32 hours in the major, plus the 32 hours of general education requirements listed above.

Performance Specialist. The performance specialist would be prepared for further professional training in the areas of television, radio, stage and film acting, and announcing. This program is ideal for developing LDS philosophy and ethics before going into professional work.

The following courses must be completed:

Theatre 121 (3), 123 (3), 124 (3), 126 (1), 260R (6), 323R (3), 324R (3), 325 (3), 424R (4); Music 105R (2); and P.E. 173 (½) and 183 (½) for a total of 32 hours in the major, plus the 32 hours of general education requirements listed above.

Courses

115. Introduction to the Theatre. (2:2:1) Home Study also. (G-HA) Oaks

Introduces the student to the fundamental theories of the theatre arts, develops a discriminating appreciation of theatre production, and provides a basic background for the area of theatre. Attendance at theatre arts laboratory required.

121. Voice, Diction, and Interpretation. (3:1:2) (G-HA m) Jenkins

Theory and training to develop skill in vocal communication and interpretation. Intended for teachers, speakers, professionals, etc. Not intended for the actor.

123. Acting I. (3:3:4) Crosland

Theory and preparation in the basic skills of acting: intensive and integrated work in vocal, physical, emotional, improvisational, and perceptional skills.

124. Acting 2. (3:3:4) Prerequisite: Theatre 123. Crosland

Continuation and advancement in the basic skills of acting: intensive and integrated work in vocal, physical, emotional, improvisional, and perceptional skills.

126. Makeup. (1:1:3) (m) Warner

An introduction to the theories of makeup through changing the appearance of the actor to correspond with an interpretation of characters. Atendance at dramatic arts laboratory required.

260R. Theatre Workshop I. (1-6:0:1-6)

Undergraduate integration in production of theatre's individual arts: acting, directing, technical theatre, playwriting, or criticism.

317R. A Survey of the History of Motion Picture Art. (2:1:2) (G-HA) Prerequisite: Theatre 117R. Metten

Provides students with a knowledge of the techniques of motion picture art, its history and a survey of the major theories of film criticism.

320. Technical Theatre I. (5:5:3) Prerequisite: admission to a professional major. Pope

Basic theories and practices of scene design, construction, lighting, painting, properties, and sound for the theatre. Shop and crew assignment required.

323R. Acting 3. (3:3:4) Prerequisite: Theatre 124. Crosland
Advanced development of characterization in vocal, bodily, emotional, and perceptional skills.

324R. Acting 4. (3:3:4) Prerequisite: Theatre 323R. Crosland
Continuation of advanced development of characterization in vocal, bodily, emotional, and perceptional skills.

325. Advanced Interpretation. (3:3:1) Prerequisite: Theatre 121.
Development of performance skill in dramatic reading, humorous reading, storytelling, and related platform techniques.

327R. Playreading. (1:1:2 ea.) Golightly
Training in "cold reading." New plays are read aloud, analyzed, and interpreted.

334. Theory and Criticism of Film Art. (3:1:2) (G-HA) Metten
Through viewing selected films in class and reading essays on film theory and criticism, this class will intensively study the aesthetics of film art.

360. Child Drama 1. (3:3:2) Oaks
The study of storytelling and informal or improvised dramatic techniques for and with young people.

362. Theatrical Costume Design. (2:2:3) Warner
Principles and aesthetics of theatrical costume design and construction.

371. Forensics Programming. (3:3:2) Prerequisite: 115, 121, 123, 320 or consent of instructor. Frost
Preparation for conducting, judging, supervising, and evaluating competitive events in Speech Communication and Theatre and Cinematic Arts, i.e., one-act plays, interpretation, oratory, etc.

377R. Secondary Teaching Curriculum and Methods. (3:3:1) Prerequisite: Ed. 301. Frost
Evaluation and preparation for student teaching: lectures, demonstrations, observations, pretesting, and development of methods and materials.

378R. Playwriting 1. (2:2:2 ea.) Home Study also. Whitman
Theory and technique of writing the one-act and the full-length play.

420. Technical Theatre 2. (5:5:3) Prerequisites: Theatre 320, ArtDs. 102, 103, Des. Tech. 111. Pope
Intermediate theories and practices of scenic design, construction, lighting, painting, properties, sound, and technical management for the theatre. Shop and crew assignments required.

424R. Acting for Motion Picture and Television. (2-4:1:2-6)
Adapting basic stage acting techniques to motion picture and television.

460R. Directing 1. (3:2:2) Home Study also. (m) Prerequisites: Theatre 121, 123 or 124, 320 or equivalent. Golightly
Prepares the student for directing assignments in Church, educational, and recreational theatre and for advanced work in directing.

461R. Directing 2. (3:2:3) (m) Prerequisite: Theatre 460R or equivalent. Golightly
Theories and techniques of directing the production of two one-act plays for presentation.

478R. Writing for Motion Picture and Television (3:2:2) Prerequisite: Theatre 378R.
The theory and technique of writing theatrical, documentary, and educational scripts for motion picture and television.

479. Secondary Student Teaching. (4-8:1:20-80) Prerequisites: Theatre 377R and completion of two-thirds of courses required for teaching major and minor or composite major. Frost
For course description and fees, see Ed. 479.

522R. Acting 5. (5:5:6) Prerequisite: Theatre 324R. Crosland
Theory and practice of major historical and modern styles of acting and actor preparation.

524R. Acting 6. (5:1:2) Prerequisites: Theatre 522R. Crosland
Supervised applied acting experience in full-length play produced for an audience.

527. Narration. (2:2:0) (m) Jenkins
The utilization of principles, practice, materials, and visual aids to create imagery in storytelling. Valuable to teachers and youth leaders.

560R. Theatre Workshop 2. (1-6:0:3-18 ea.) Henson
Integration in production of theatre's individual arts: literature, directing, acting, and stagecraft.

564. Theatre History 1. (3:3:0) Hansen
The history of the theatre from primitive, Egyptian, Greek, Roman, Medieval, and Elizabethan periods to LDS theatre history.

565. Theatre History 2. (3:3:0) Metten
The history of the theatre: Oriental; Renaissance—Italy and France; romanticism and the well-made play; birth and development of realism; departures from realism.

572R. Child Drama 2. (2:3:0) (m) Oaks
The study of theory and techniques of formal drama for and with children.

578R. Playwriting 2. (2:2:0) (m) Hansen
Theories and techniques of conceiving and expressing experience as dramatic literature.

660R. Seminar in Interpretation. (3:3:0) Prerequisites: Theatre 121, 123, 325, or equivalent. Gledhill

664. Theatre Administration 1. (2:2:0) Henson

665. Theatre Administration 2. (2:2:0) Henson

668R. Special Studies in Theatre History. (1-3:1-3:0) Metten

670. Technical Theatre 3. (5:5:3) Prerequisite: Theatre 320 or consent of instructor. Pope

671. Directing 3. (3:2:2) Prerequisites: Theatre 460, 461R, or equivalent. Metten

674R. Projects in Theatre. (1-4:1-4:0 ea.) Metten

678. Stage Lighting. (1-2:1-2:0) Prerequisite: Theatre 320 or consent of instructor. Pope

690. Methods and Problems of Research in Speech or Dramatic Arts. (2-3:2-3:0) Pope

697R. Seminar in Special Theatre Forms. (2-3:2:1) Gledhill

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

731. Dramatic Theory and Criticism 1. (5:5:0) Metten

733. Dramatic Theory and Criticism 2. (3:3:0) Hansen

740. Seminar in the Theory and History of Theatrical Costuming. (2:2:1) Pope

760. Directing 4. (2:2:0) Prerequisites: Theatre 564, 565, 671. Hansen

761. Directing 5. (2:2:0) Prerequisites: Theatre 564, 565, 671, 733. Woodbury

797R. Research. (1-6:Arr.:Arr. ea.)

799. Dissertation for Ph.D. Degree. (Arr.)

University Studies

Professor: Sorenson (Chairman, 370 BRMB).
Associate Professor: Mayfield.
Instructor: Jordan.

This department consists of the following programs:

1. The bachelor's degree in University Studies
2. The associate degree in University Studies (including the library-technician program).
3. The University Studies 300R course.

The Bachelor's Degree in University Studies

This program provides students seeking the B.A. or B.S. degree with an alternative to a regular major. With proper advisement and authorization, a student may undertake an individually tailored degree program which consists of courses from several academic areas instead of just one. Students preparing to meet certain professional school admission requirements, students from nonindustrial countries, older students returning with career experience, and students seeking a broad education may be served by this program. Any undergraduate student at Brigham Young University who has completed at least 30 hours of academic credit with a grade-point average of 2.0 or higher is eligible to apply for degree-seeking status in this program. Generally speaking, a student should apply for admission to this program prior to completion of his last 45 hours of work.

Application forms may be obtained from the departmental office, 365 BRMB. These forms request the following information:

1. A summary of projected educational and career goals.
2. A proposal justifying entrance into the University Studies degree program; he must convince a faculty committee that his needs cannot be adequately met by an existing major program. The student may be asked to consult with a faculty member who can advise regarding the suitability of a specific major to meet his needs.
3. A sketch of the occupational outlook and prerequisites for further training in his desired field of study. He must consider and state the actual marketability of his skills. This step is included to ensure that the student is aware of the potential assets and liabilities in pursuing a University Studies degree in relation to his objectives. Useful information on this point is readily available at the University Placement Center, the Personal Development Center, or the Career Education Department.
4. A tentative proposal for at least three proposed areas of concentration.
5. A tentative proposal of the actual courses in which the student intends to enroll.
6. A recent unofficial transcript of college credits including all transfer credit from other institutions.
7. A copy of the student's ACT scores, if available.

A faculty committee advises the student in developing his program and then authorizes it. Records and continuing advisement are thereafter handled in the College of General Studies Advisement Center. Once the student's proposed program is accepted, he is expected to enroll only in the courses agreed upon in the program, unless the department or college advisement center approves a modification.

University Graduation Requirements: In addition to the courses authorized for this degree, the student must complete regular University general education requirements and forty hours of upper division credit; in addition, he must have a cumulative grade-point average of 2.0 and at least 30 hours in residence on the BYU campus.

Specific University Studies Requirements:

Each student is expected to concentrate his studies mainly within three or more fields. What constitutes a suitable field or area depends upon the student's objectives. At least 15 semester hours should be taken in each area of concentration. Normally, work in the three areas should total at least 55 hours. A marginal application for admission to the program may be strengthened by also planning a suitable fourth, and perhaps a fifth, area for which from 10 to 14 hours of work is to be completed. A minimum of 20 of the 55 hours in the three areas of concentration must be at upper division level. In most instances, no more than 25 hours of credit may be used from any one academic department; with more than that many hours, a major in the department is usually more sensible.

Associate Degrees in University Studies

Coordinator: Craig Mayfield, 370 BRMB.

Associate of Arts

This program is designed primarily for the college student who plans to be in school only two years. It allows him to tailor his course work to meet his own needs, interests, and desires. Since that course work includes general education subjects as well as a strong concentration in a selected area of study, the student can continue in bachelor's-degree study beyond his two years without any loss of credit.

The student pursuing a four-year degree may certify for the associate degree upon completion of the following degree requirements:

General Education Requirements	Hours
Biological science	3
Engl. 111, 212	6
Health 130	2
Hist. 170	3
Humanities	3
Physical education	1
Physical science	3
Religion	8
Social science	3
	32

Department Requirements	Hours
Area of concentration	21
Electives	11
	32

Associate of Science (Library Technician)

Supervisor: K. Paul Jordan, 331 HBLL.

Many positions in modern-day libraries can best be filled by library technicians. These positions occur in purchasing, circulation, cataloging, and reference. Students completing the library technician program are prepared to work in public, college, university, and industrial libraries and in specialized research and information centers. Also, there is a trend toward adding library technicians to the school library staff and using these people to work as media specialist assistants. To meet the need for library technicians, the following associate-degree curriculum is provided:

First Year	F	W
LIS 111; Ed. 406	1	2
Univ. Studies 201, 202	3	3
Engl. 111; Hum. 101 or 202	3	3
Bus. Ed. 101, 203	2	2
Health 130	2	
Physical education	½	½
Social science; biological science	3	3
Relig. 121, 122	2	2
	16½	15½

Second Year	F	W
Univ. Studies 211, 212	3	3
Univ. Studies 213		1
Bus. Ed. 204, 206	2	2

Bus. Ed. 220, 275	3	4
Hist. 170; physical science	3	3
Engl. 212; elective	3	2
Religion	2	2
Total hours	16	17

The University Studies 300R Course

Students may initiate classes tailored to their own interests where no comparable course exists in the University's curriculum. A minimum of five students are required to support an application for a class. A faculty sponsor is required, but he does not serve as a teacher in the conventional sense; students themselves plan the instruction and carry out the plan as approved by the University Studies Department. Further information can be obtained at 370 BRMB.

Courses

201. Introduction to Libraries (IMC) (3:3:0) Jordan
Introduction to library science. Survey of library work, including a brief historical overview; the fundamentels of library objectives, organization, techniques, and terminology.

202. Organization of Library (IMC) Materials. (3:3:0)
Problems and practice in simple classification, understanding numbers, practice in dictionary cataloging and assigning subject headings, filing cards, and care and maintenance of the collection.

211. Acquisition of Library (IMC) Materials. (3:3:0) Slater
To create a better understanding of the problems involved in building collections and to learn sources of materials, order forms, and procedures.

212. Work with Library (IMC) Users. (3:3:0) Albrecht
Service to users through basic reference tools in general and in each subject field; circulation methods, book talks, storytelling, and good library exhibits.

213. Supervised Library (IMC) Practice. (1:0:2) Jordan
Experience working in a library. Written report required.

300R. Independent Group Studies. (3:3:0)
Students with special intellectual interests will organize themselves into an independent study class sponsored by the department most concerned with their areas of interest.

Youth Leadership

Associate Professor: Packer (Chairman, 105 RB).
Assistant Professor: Skinner.
Instructors: Bohman, Catherall, Olsen.

This department is designed to serve two major purposes: to prepare men and women for professional careers with public and private agencies whose programs involve youth, and to provide training and experience for others who desire to become effective church and civic leaders for youth through affiliation with the programs of such agencies.

Major in Youth Leadership

The student may choose a program leading to a Bachelor of Science in youth leadership by selecting from two areas of emphasis, agency or acculturation. Each suggests a core program and each offers tracks of special interest for the student. The two tracks of the acculturation emphasis open avenues for advanced-degree training and encourage the student to consider seriously the opportunities for specialization afforded by an M.S. degree in a related discipline. The agency is designed to accommodate terminal training at the B.S. degree level and may be completed in four years or, by taking advantage of Spring and Summer terms, in three years.

Internship programs are built into the projected tracks (See Youth Ldr. 373, 401R, 402R, and 412 course descriptions). Through departmental consultation these opportunities may provide salaried experience in addition to college credit.

Acculturation Emphasis
Recommendations for General Educational Requirements

Social Science: 5 hours required; 9 recommended
Sociol. 111 (3) Introductory Sociology
Psych. 111 (3) General Psychology
CDFR 210 (3) Child Guidance

Biological Science: 6 hours required; 9 recommended
Bot.-Zool. 351 (3) Natural History for Elementary Teachers
Bot. 105 (2) Plant Kingdom
Bot. 205 (2) Field Botany
Bot. 400 (2) Conservation of Natural Resources

Physical Science: 6 hours required; 9 recommended
Geol. 101 (2) Introduction to Geology
Geol. 102 (1) Introduction to Geology Laboratory
Geol. 104 (3) Environmental Geology
Physics 137 (3) Environmental Physics

Humanities: 6 hours
Comms. 102 (2) Introduction to Public Speaking
Comms. 110 (2) Introduction to Mass Communication
Comms. 301 (2) Business and Professional Communication

Math.-Stat.-Log.: 6 hours (or Lang.: 12 hours)
Language (12)
or
Physics 110 (3) Development of Scientific Thought
Math. 307 (3) Mathematics and the Humanities
Stat. 221 (3) Principles of Statistics

English: 6 hours
Engl. 111 (3) Composition and Reading
Engl. 316 (3) Technical Writing

Health Science: 2 hours
Health 130 (2) Personal Health

History: 3 hours
Hist. 170 (3) The American Heritage

Physical Education: 2 hours required; 6 recommended
P.E. 126 (½) Archery, Beginning
P.E. 127 (½) Archery, Intermediate
P.E. 128 (½) Bowling, Beginning
P.E. 131 (½) Golf, Beginning
P.E. 160 (½) Swimming, Beginning
P.E. 165 (½) SCUBA Diving, Beginning
P.E. 166 (½) Canoeing
P.E. 179 (½) Jogging
P.E. 182 (½) Square Dance
P.E. 190 (½) Recreational Dance
P.E. 264 (1) Lifesaving
P.E. 265 (1) Water Safety Instruction

Religion: 14 hours
Relig. 121 (2) Introduction to the Book of Mormon
Relig. 122 (2) Introduction to the Book of Mormon
Relig. 365 (2) Applying Gospel Principles in Church Youth Programs
Others (8)

Required Core Program Courses

Youth Ldr. 301, 332, 344, 370, 375, 378, 380, 381, 382, 401R, 402R VI, 412 VI, 480, and 492

Rec. Ed. 223 (2) Fundamentals and Techniques of Mountaineering

Health 430 (3) Advanced First Aid Instructorship

Optional Tracks

Behavioral Adjustment Track:
Org. Behav. 321 (3) Fundamentals of Organizational Behavior

Sociol.-Psych. 357 (3) Interpersonal Growth and Group Processes
Sociol. 360 (3) Introduction to the Field of Social Work

Sociol. 383 (2) Juvenile Delinquency
CDFR 312 (2) Principles of Child Guidance
Rec. Ed. 371 (2) Family Recreation
Health 460 (2) Drug Use and Abuse
Youth Ldr. 371

Program Specialist Track:
Youth Ldr. 278 and 371
Theatre 527 (2) Narration
CDFR 322 (3) Creative Experiences with Children
ArtDs. 324 (2) Recreational Art—Crafts
Ed. 406 (2) Educational Media Production and Utilization
Rec. Ed. 301 (2) Introduction to Recreation
Rec. Ed. 371 (2) Family Recreation

Recommended Electives
Anthrop. 317, Archaeol. 415, CDFR 430, Psych. 322 and 357, Comms. 211, Zool. 250, and Geol. 104

Agency Emphasis
Recommendations for General Education Requirements

Social Science: 5 hours required; 8 recommended
Sociol. 111 (3) Introductory Sociology
Sociol. 223 (3) Racial and Minority Group Relations
Sociol. 383 (2) Juvenile Delinquency

Biological Science: 6 hours required; 8 recommended
Bot. 101 (2) Plant Biology
Bot. 205 (3) Field Botany
Bot.-Zool. 250 (3) Environmental Biology
Micro. 311 (2) Sanitation and Public Health

Physical Science: 6 hours
Physics 127 (3) Descriptive Astronomy
Geol. 101 (2) Introduction to Geology
Geol. 102 (1) Introduction to Geology Laboratory

Humanities: 6 hours
Comms. 101 (2) Introduction to Mass Communication
Comms. 102 (2) Introduction to Public Speaking
Comms. 301 (2) Business and Professional Communication

Math.-Stat.-Log.:6 hours (or Lang.: 12 hours)
Physics 110 (3) Development of Scientific Thought
Math. 307 (3) Mathematics and the Humanities
Stat. 221 (3) Principles of Statistics

English: 6 hours
Engl. 111 (3) Composition and Reading
Engl. 316 (3) Technical Writing

Health Science: 2 hours
Health 130 (2) Personal Health

History
Hist. 170 (3) The American Heritage

Physical Education: 2 hours
P.E. 126 (½) Archery, Beginning
P.E. 127 (½) Archery, Intermediate
P.E. 128 (½) Bowling, Beginning
P.E. 131 (½) Golf, Beginning
P.E. 160 (½) Swimming, Beginning
P.E. 165 (½) SCUBA Diving, Beginning
P.E. 166 (½) Canoeing
P.E. 179 (½) Jogging
P.E. 182 (½) Square Dance
P.E. 190 (½) Recreational Dance
P.E. 264 (1) Lifesaving
P.E. 265 (1) Water Safety Instruction

Religion: 14 hours
Relig. 121 (2) Introduction to the Book of Mormon
Relig. 122 (2) Introduction to the Book of Mormon
Relig. 365 (2) Applying Gospel Principles in Church Youth Programs
Others (8)

Required Core Program Courses
Youth Ldr. 278, 301, 305, 332, 344, 370, 371, 373, 375, 378, 380, 401R, 402R VI, 412 VI, and 492
Bus. Ed. 101 (2) Beginning Typewriting or
Comms. 410 (2) Nonverbal Communication

Optional Tracks

Scout Executive Track: 6 hours
Youth Ldr. 306, 312 372R (6 hours), 401R, and 410
Bus. Ed. 220 (3) Business Communication
Bus. Ed. 305 (3) Principles and Methods for Analyzing Office Operations

Agency Track:
Youth Ldr. 372R (4 hours, or 2 hours if taken with Rec. Ed. 371 (2) Family Recreation and Youth Ldr. 381, and 382
Bus. Ed. 220 (3) Business Communication
Bus. Ed. 305 (3) Principles and Methods for Analyzing Office Operations
Org. Behav. 321 (3) Fundamentals of Organizational Behavior or
Sociol.-Psych. 357 (3) Interpersonal Growth and Group Processes
Ed. 406 (2) Educational Media Production and Utilization

Recommended Electives
Theatre 121 and 527, Micro. 311, Org. Behav. 341, Psych. 322 and 350, Health 121 and 460, Bus. Mgt. 241, CDFR 210, Comms. 211, and Ed. 406

Minor in Youth Leadership

For those desiring a minor in youth leadership, a total of 18 hours may be selected.

Agency Emphasis

Youth Leadership
305 (3) Agency Finance
344 (2) National Youth Organizations
375 (2) Executive Dynamics

Other courses selected from the core program or either the Scout executive or agency tracks: 11 hours.
Note: Outdoor education may be selected as part of the academic support area for students who are certifying to teach in elementary education. Ten hours may be selected from Youth Ldr. 370, 378, 380, 381, 382, and 480 and Bot. 205, 210, and 400.

Survival Instructor Certification

Majors and nonmajors who wish to certify as BYU Survival instructors may do so by—

1. Completing Youth Ldr. 480 and completing or successfully challenging Youth Ldr. 278, 370, 378, 380, 381, 382; Rec. Ed. 223; Org. Behav. 321; and Health 430 (grade of B or better required)
2. Receiving certifying approval of performance in three of the following internship courses:
   401R (480 leadership or equivalent), 402R (desert, alpine, arctic, and marine, or equivalents), and 402R (initiative practicum for at least 2 hours of credit)
3. Demonstrating superior performance as a field staff leader in BYU or non-BYU survival programs (8 BYU credit hours or equivalent performance)
4. Successfully completing a comprehensive certifying examination

Courses

278. Principles of Camping. (1:1:2) Skinner
Elementary principles of outdoor camping, including cooking, sanitation, safety, and campmaking.

301. Introduction to Youth Leadership. (1:1:0)
An introductory course designed to interpret for prospective youth leadership majors career opportunities and to structure an appropriate baccalaureate program for each candidate.

305. Agency Finance. (3:3:0) Catherall, Skinner
An analysis of community financing of community service organizations, including independent campaigns, endowments, bequests, trust funds, etc.

306. Council Operating Committee Functions. (3:3:0) (m) Catherall
Organizational and operational practices of youth agencies on the administrative level.

312. Commissioner Service and District Operation. (2:2:0) Catherall
Combines the study of the organization, operation, and function of the district committee and commissioner service.

332. Community Relationships. (3:3:0) (m) Skinner
An examination of methods of directing community resources toward the needs of youth.

344. National Youth Organizations. (2:2:0) Skinner
An exploration of the impact of various youth-serving agencies on the culture of America.

370. Outdoor Survival Field Activities. (1:1:1) (m)
A study and lab experience in outdoor activities correlated to the lore of the American Indians.

371. Youth Conference Planning and Administration. (2:2:1) (m) Skinner
Deals with techniques of planning and organizing youth and other conferences related to youth agency service.

372R. Youth Agency Programming. (2:2:0)
A comparative study of related youth agency programs for preadolescents, early adolescents, and late adolescents.

373. Practicum in Volunteer Leadership. (2:1:5) Catherall, Skinner
Requires participation with a youth-serving agency in a volunteer leadership capacity.

375. Executive Dynamics. (2:2:0) Catherall
Methods of executive leadership and personal growth practices calculated to meet executive leadership demands.

378. Techniques of Outdoor Adventure. (2:2:3) Skinner
Advanced outdoor skills and camp program planning for youth leaders. American Camping Association certification possible.

380. Primitive Land Survival. (2:2:1) (m)
Training to meet the adversity of primitive living without the use of modern equipment and facilities.

381. Teaching in the Outdoors. (2:2:0)
Development and use of outdoor teaching situations to implement the achievement of educational objectives.

382. Teaching in the Outdoors—Laboratory. (1:0:2)
Laboratory experience will occasionally require overnight participation by the student.

401R. Youth Agency Staff Training. (1: lecture and laboratory in organized camp for one week) Prerequisite: consent of instructor. Packer
Preparation for selected leadership assignments in agency summer camps and related programs.

402R. Outdoor Leadership Practicum. (2-4:0:4-8 weeks) Prerequisite: consent of instructor. Packer
Administrative experience in positions of staff leadership with selected youth agencies.

410. Historical Development of Scouting. (2:2:0) Catherall
The development of Scouting in America and the service extended through the National Council organization.

412. Executive Field Training. (2-8:2:40) Prerequisite: completion of all other major requirements. Catherall, Packer, Skinner
Laboratory experience requiring participation in off-campus administrative assignments.

480. Outdoor Survival. (3-5:S per week/3 weeks: 70 per week/3 weeks)
A living experience course in physical and emotional stress situations designed to produce positive interpersonal commitments. Special fee required.

492. Seminar. (1:1:0) Packer

Zoology

Professors: Allen, Allred, Anderson, Chapman, Frost, C. L. Hayward (emeritus), Heninger, Jaussi, Jorgensen (Chairman, 575 WIDB), Murphy, Nicholes, V. Tanner (emeritus), W. Tanner, Tipton, Wood.
Associate Professors: Barnes, Booth, Braithwaite, Heckmann, Miller, Seegmiller, Smith, White.
Assistant Professors: Allman, Bradshaw, Farmer, G. L. Hayward, Jeffery, Pritchett, Rhees, Simmons, Whitehead.
Collaborators: Buchanan, Phillips, Porter, Spafford, Thompson, Wiser.

The Department of Zoology offers professional training leading to the degrees of Bachelor of Science (B.S.), Master of Science (M.S.), Master of Biological Education (M.S.), and Doctor of Philosophy (Ph.D.). Courses and counseling are offered in preprofessional training for (1) premedicine, (2) predentistry, (3) preoptometry, (4) predental hygiene, and (5) prepharmacy. Students planning to teach biology and general science in secondary schools and biology in junior colleges may also certify with a major in this department.

Students who major in zoology and demonstrate academic competence find numerous employment options open to them, ranging from technical work in research laboratories to field technicians for environmental research laboratories to field technicians for environmental research companies. Zoology students may develop expertise and interest in such diverse areas as cell chemistry, community health, disease transmission, endangered species preservation, evolution and speciation, freshwater biology, human biology, marine biology, nutrition, organ transplants, pest control, population management, reproductive behavior, taxonomy, and wildlife management. In addition to the preprofessional options mentioned earlier, zoology majors often prepare themselves for graduate studies in almost all areas of biological research.

Students participate with the twenty-eight faculty members in important research programs which include aquaculture; bark beetle biology and taxonomy (worldwide); biological impacts of pesticides and plasticides; fish diseases; fisheries biology; insect morphology and electro-physiology; parasitic diseases of returned missionaries; parasitic diseases of western United States; raptor biology in Alaska, western United States, and Greenland; and rodent biology in western United States. Working with the faculty on research problems, students obtain valuable professional experience while attending the University and often earn financial support as graduate students. These experiences assist to strengthen student applications to profesional schools, particularly medical, dental, and graduate schools. Frequently, work performed by students results in professional publications coauthored by the students.

As students advance their training and enter into graduate school, many are given opportunities to work as paid adjunct instructors, assisting the faculty as teaching assistants. These experiences are invaluable to future applications for employment, particularly as teachers. They also provide a valuable service to the Department of Zoology and students enrolled in its courses.

Degrees completed in the Department of Zoology are highly regarded by faculty at other universities throughout the United States, as evidenced by student successes after transferring to other schools for further training. Zoology graduates have repeatedly demonstrated excellent academic preparation, along with unusual leadership aptitude and professional attitudes, as they have persued responsibilities in universities, government agencies, and private sectors of the professional community. A measure of their success is evidenced in the large proportion of them who have advanced to responsible positions in their respective institutions. Generally, academic success in the Department of Zoology may be used as a positive indication of the success students might expect in other academic institutions.

Department Student Advisement

Advisement may be obtained from (1) the college advisement center (392 WIDB), which provides all the assistance necessary during registration, along with some information concerning possible options of study within the college; (2) the Department of Zoology (574 WIDB), which will assist students with problems concerning options within their zoology major, with their academic and professional problems, and generally to obtain success while at the University; and (3) the Preprofessional Office (391 WIDB), which may also provide help in determining which optional courses to take in satisfying preprofessional admissions requirements for specific professional schools in the fields of medicine, dentistry, optometry, dental hygiene, pharmacy, and veterinary science, along with information concerning the professional tests (MCAT, DAT, etc.).

Students electing to major in the Department of Zoology will be assigned an adviser by the department administrative assistant in 574 WIDB. To effect the most economic use of student time, courses of study in zoology and supporting fields should be agreed upon by the students and their respective advisers as quickly as possible after they declare themselves majors in the Department of Zoology. These agreements are verified with cosignatures on advisement sheets obtainable from the college advisement center (392 WIDB). Students may change the agreements simply by obtaining approval from their adviser. Such changes are conveniently recorded on the advisement sheets, where they can be readily reviewed during graduation evaluation proceedings. The advisement sheets include (1) general education requirements, (2) department requirements, (3) support requirements and suggestions of courses from other departments, and (4) slots to indicate courses in the department to satisfy requirements for specific options of specialization.

Some of the options open to students in the Department of Zoology are—

Anatomy
Ecology and environmental biology
Genetics
Molecular and cellular biology
Preprofessional dentistry, medicine, optometry, dental hygiene, pharmacy, and veterinary science
Developmental biology
Entomology
Fisheries and wildlife biology
Marine and freshwater biology
Parasitology
Physiology
Secondary teaching composite
Systematics

Major Requirements

Professional Biology

Many students use a zoology major to satisfy requirements for professional schools such as dentistry and medicine. Other students intend to pursue a professional interest in biology. Courses generally required for professional biology students by the Department of Zoology are—

Zool. 201, 202, 203, 371, 460 or 531, and 461
Bot. 370 Introduction to Genetics.

An additional 9 credit hours of upper-division zoology electives approved by the student's adviser must also be earned.

Preprofessional—Predentistry and Premedicine

Most students planning to apply for dental or medical schools major in the Department of Zoology; thus, these requirements are specified to make their applications as strong as possible and also to provide a professional biology major for graduate work if they are not accepted to dental or medical school. All other preprofessional students should consult with their advisers or the preprofessional office for course requirements. Courses generally required for predentistry and premedicine by the Department of Zoology are—

Zool. 201, 203, 363 or 483, 371, 460, and 461
Bot. 370 Introduction to Genetics.

An additional 9 credit hours of zoology electives approved by the student's adviser must also be earned. Students who have been accepted to dental, medical, or osteopathic schools may have all or any number of Zool. 363, 460, 461, and 483 waived from the graduation requirements, providing equal semester hours of other approved upper-division zoology credit has been earned.

Three-Year Predentistry and Premedicine Option. Some zoology students have the academic capability to satisfy the minimum preprofessional requirements with grades high enough to be accepted to dental, medical, or osteopathic school after only three years of preprofessional training. These students may transfer one year of professional school credit back to Brigham Young University and graduate with a B.S. degree from the Department of Zoology, providing the following requirements are satisfied at Brigham Young University or transferred from another college or university:

1. All general education and residence requirements
2. A minimum of 96 semester hours of credit from preprofessional schools
3. At least 20 semester hours of upper-division credit from preprofessional schools
4. Zool. 201, 203, 371; Bot. 370, Introduction to Genetics.

Secondary Teaching—Composite Option

Students planning to teach biology or general science in the public school systems are required to complete the following composite of courses. If students enter this option late in their academic careers, substitutions with other courses are made on an individual course basis by the college coordinator.

Zool. 201, 260 and 261 or 460 and 461, 331, 344, 350, and 371 or Bot. 372, Evolutionary Genetics
Bot. 105 Plant Kingdom
Bot. 205 Field Botany
Bot. 370 Introduction to Genetics
Bot. 440 Plant Physiology
Micro. 321 General Microbiology
Micro. 322 General Microbiology Lab

Students should refer to the Secondary Teaching option advisement sheet for all nonbiology requirements in chemistry, geology, math, physics, and education. These requirements are also found in the education section of this catalog.

Minor Requirements

Although minors are not required, the Department of Zoology offers a rather flexible minor for those students requesting it. The following courses are required for an academic minor in the Department of Zoology:

Zool. 201, 202, and 203

An additional 2 credit hours of upper-division zoology electives approved by the Department of Zoology must also be earned. Credit required for student's majors may not also be used to satisfy the requirements for a zoology minor. At least 3 credit hours in zoology must be taken at Brigham Young University in satisfying the minor requirements. Courses that cannot be used in satisfying the zoology minor are Zool. 321, 325, 342, 377, 429, and 479.

Academic Requirements

Courses used to satisfy requirements for a major or minor in the Department of Zoology must be passed with a grade of C— or better. Although general education courses are not usually specified, students majoring in the Department of Zoology must complete Engl. 111 and 316 with a C— or better grade to satisfy the University English composition requirement.

Suggested Two-Year Course Sequences for Zoology Majors

The following course sequences are only suggestive and not mandatory, but they do represent logical sequencing in providing the most economical use of time at the University. These guides are intended particularly for freshmen who preregister at home without advisement and for early transfers from other institutions.

Professional Biology Options

Freshman	F	W	Sp/Su
Chem. 105		4	
Chem. 106			4
Engl. 111	3		
Hist. 170 or Pol. Sci. 110	3		
Math. 110R	3	3	
Physical education	½	½	
Relig. 121 and 122	2	2	
Zool. 201			4
Electives	5	7	
	16½	16½	8

Sophomore	F	W	Sp/Su
Bot. 370		2	
Chemistry	4		
Health 130		2	
Math. 109	4		
Physical education	½	½	
Religion	2	2	2
Zool. 202	4		
Zool. 203		4	
Electives	2	6	5
	16½	16½	7

Preprofessional Option—Predentistry or Premedicine

Freshman	F	W	Sp/Su
Chem. 105		4	
Chem. 106			4
Engl. 111	3		
Hist. 170 or Pol. Sci. 110	3		
Math. 110R	3	3	
Physical education	½	½	
Relig. 121 and 122	2	2	
Zool. 201			4
Electives	5	7	
	16½	16½	8

Sophomore	F	W	Sp/Su
Bot. 370		2	
Health 130		2	
Math. 109	4		
Physical education	½	½	
Physics 201*		4	
Physics 202*			4
Religion	2	2	2
Zool. 203	4		
Electives	6	6	
	16½	16½	6

*Some students may elect to take another physics sequence rather than 201 and 202.

Secondary Teaching—Composite Option

Freshman	F	W	Sp/Su
Bot. 105		3	
Chem. 102 and 103		6	
or			
Chem. 105 and 106		4	4
Engl. 111	3		
Hist. 170 or Pol. Sci. 110	3		
Math. 105 or 110R	3		
Physical education	½	½	
Relig. 121 and 122	2	2	
Zool. 201			4
Electives	5	5 or 7	
	16½	16½	8

Sophomore	F	W	Sp/Su
Bot. 205			3
Bot. 370		2	
Chem 252	5		
or			
Chem. 281	3		
Geol. 101 and 102		3	
Physical education	½	½	
Physics 137		3	
Religion	2	2	
Zool. 331	4		
Electives	5 or 7	6	4
	16½	16½	7

Some students are unable to attend school during the Spring and Summer terms, and for them to progress at the same rate suggested by these sequences, they will have to take more credit and schedule some courses out of suggested sequence. For some students this does not represent any particular problem, but most should follow the suggested sequencing to insure the best academic success. Once the major prerequisite courses have been completed, sequencing of the remainder is not as essential; thus, scheduling is more flexible.

Courses

101. Introduction to Biological Science. (3:3:3) (G-BS) Roeller
A survey course in the field of biological science. For general college majors only.

105. Animal Biology. (3:2:2) (G-BS)
For nonbiology majors.

201. (Bot.-Micro.-Zool.) Introduction to Biology. (4:5:0) (G-BS) Prerequisites: Chem. 105 and concurrent registration in Chem. 106.
Introduction to basic principles of biology. Offered for majors and minors in biology.

202. Invertebrate Zoology. (4:3:4) (G-BS) Prerequisite: Zool. 201 or equivalent. Barnes, Braithwaite
Functional morphology, taxonomy, ecology, and interrelationships of the invertebrates.

203. Vertebrate Zoology. (4:2:4) (G-BS) Prerequisite: Zool. 201 or equivalent. Pritchett, Smith, C. White
Structure, classification, and natural history of the vertebrates.

205. Introduction to Human Biology. (4:4:0) (G-BS)
For non-biology majors. This course carries CDFR credit for CDFR majors. Emphasizes metabolism, physiology of nervous system, endocrinology, reproduction, embryology, and genetics.

229. Preview into Dentistry. (1:1:2) Heckman, Whatcott, Taylor
Advantages and disadvantages of the dental profession. Application to and preparation for dental school. For freshmen and sophomores. Not acceptable for zoology major credit.

250. (Bot.-Zool.) Environmental Biology. (3:3:0) Home Study also. (G-BS m)

Ecological concepts and the environmental impact of man. For nonbiology majors.

260. Elementary Human Anatomy. (2:1:2) (G-BS)

Primarily for students of physical education and physical therapy. Recommended for students of nursing. Not acceptable for zoology major credit.

261. Elementary Human Physiology. (4:3:2) (G-BS) Prerequisite: Chem. 102 or equivalent.

Primarily for students of physical education, physical therapy, nursing, and food science and nutrition. Not acceptable for zoology major credit.

276. (Bot.-Zool.) Heredity. (3:3:0) Home Study also. (G-BS m) Prerequisite: Bot. 101 or 105, or Zool. 105, or equivalent.

Principles of inheritance. For nonbiology majors.

317. Human Parasitology. (3:2:3) (G-BS) Prerequisite: Zool. 201 or equivalent. Andersen

321. History and Philosophy of Biology. (2:2:0) Home study also. Prerequisite: a college course in one of the biological sciences.

Development of biological thought from the Grecian period to the present.

325. Biological Techniques. (2:1:2) (m) Simmons

Techniques of preparing specimens and materials for demonstration and study.

331. Introductory Entomology. (4:2:4) (G-BS) Prerequisite: Zool. 201 or equivalent. Booth, Tipton, Whitehead

Structure, classification, and life histories of insects and selected arthropod relatives.

342. Ornithology for Elementary Teachers. (1:0:3) (G-BS) Prerequisite: consent of instructor.

344. Natural History of the Vertebrates. (4:2:4) (G-BS) Prerequisite: Zool. 203. Pritchett

350. (Bot.-Zool.) General Ecology. (3:2:3) Prerequisites: Zool. 201; a course in geology.

Ecosystem structure and function, interspecific relations, environment and life, and community development.

351. (Bot.-Zool.) Natural History for Elementary Teachers. (3-4:2:2) Home Study also. (G-BS)

For nonbiology majors.

352. (Bot.-Zool.) Field Studies in Natural History. (2:0:4) (G-BS) Prerequisite: Zool. 351.

Practical application and interpretation of contemporary problems and principles of natural history taught in the prerequisite course. For nonbiology majors.

361. Applied Human Physiology. (4:3:2) Prerequisites: Chem. 102; completion of or concurrent registration in Chem. 281, Zool. 260, 261. Rhees

Advanced, applied physiology for nurses and allied health professionals. Not appropriate for premedical or predental studies. Not acceptable for zoology major credit.

363. Comparative Vertebrate Anatomy. (4:2:4) (G-BS) Prerequisite: Zool. 203. Miller, Tanner

364. Comparative Osteology. (3:2:3) (G-BS) Prerequisite: consent of instructor. Miller

Nomenclature and comparative study of the vertebrate skeleton, including form and function.

☐**Botany 370. Principles of Genetics I.** (2:2:0)

371. Principles of Genetics II. (2:2:1) Prerequisite: Bot. 370. Bradshaw, Farmer, Jeffrey

Emphasis on regulatory mechanisms, evolutionary mechanisms, and behavior.

377. (Bot.-Zool.) Secondary Teaching Procedures in Biology. (3:3:1) Prerequisite: Ed. 301.

For course description see Ed. 377. Required of biology teachers.

378. (Bot.-Zool.) Genetics Laboratory. (1:0:3) (m) Prerequisite: Bot. 370. Farmer, Jeffrey

380. Histology. (4:2:4) (G-BS) Prerequisite: Zool. 201 or equivalent. Chapman, Heckmann

381. Histological Techniques. (2:0:4) Chapman

404. Comparative Evolutionary Theory. (3:3:0) (G-BS) Prerequisites: Zool. 202 203, 371 (or Bot. 372); or equivalents. Jeffery, C. White

A critical study of principles of organic evolution and its impact on modern thought.

409. Animal Systematics and Diversity. (2:2:0) (G-BS) Prerequisites: Zool. 202, 203. Wood

The basic principles of animal diversity, classification, and nomenclature.

412. Introduction to Marine Biology. (3:3:0) Prerequisite: Zool. 202. Braithwaite

Marine life, the sea as an environment, and research methods.

417. General Parasitology. (4:3:3) (G-BS) Prerequisite: Zool. 202. Andersen, Heckmann

Parasites of man and domestic animals. Students cannot receive credit toward major for both Zool. 317 and 417.

429. Clinical Observation for Predental Students. (2:1:3) Heckmann

Junior and senior predental students will be placed in local dental offices to obtain experience in their selected profession. Not acceptable for zoology major credit.

457. Wildlife and Fishery Management Techniques. (3:2:3) (G-BS m) Prerequisite: Zool. 350. Frost, Smith

460. Principles of Physiology. (2:2:1) Prerequisite: Zool. 201 or equivalent. Heninger, Jaussi

General physiological principles that are common to all animal groups.

461. Physiology of Organ Systems. (3:2:4) Prerequisites: Zool. 202, 203, 460. Heninger, Jaussi

A study of the function and regulation of organ systems.

479. (Bot.-Zool.) Secondary Student Teaching. (4-8:0:20-40) Prerequisite: Zool. 377.

For course description see Ed. 479. Required of biology teachers.

☐**Geology 480. Introduction to Paleontology.** (3:2:2)

483. Developmental Biology. (4:2:6) (G-BS) Prerequisite: Zool. 201. Bradshaw, Seegmiller

☐**Statistics 501. Statistics for Research Workers I.** (5:4:3)

☐**Microbiology 511. Immunology.** (4:2:6)

517. Experimental Parasitology. (3:2:3) Prerequisite: Zool. 317 or 417. Andersen, Heckmann

Offered 1975-76 and alternate years.

521. Zoological Literature. (2:2:0) Wood

Literature research techniques necessary for zoological research.

☐**Botany 522. Biological Instrumentation.** (3:1:6)

526. (Bot.-Zool.) Cell Biology. (4:3:3) (m) Prerequisite: Introductory course in biochemistry. Andersen, Farmer, Hess, Whitton

Molecular physiology and ultrastructure of cells, with emphasis on eucaryotic organisms.

530. Insect Classification. (4:1:6) Prerequisite: Zool. 331. Wood

531. Insect Physiology. (4:2:6) Prerequisites: Zool. 331; and Chem. 252 or 351. Booth, Whitehead

532. Insect Morphology. (4:2:4) Prerequisite: Zool. 331. Whitehead

534. Economic Entomology. (3:2:2) Prerequisite: Zool. 331. Booth

535. Medical Entomology. (3:2:2) Prerequisite: Zool. 331. Recommended: Micro. 331. Tipton

Arthropods and arachnids that affect the health of man and domestic animals.

536. Comparative Toxicology. (3:2:3) Prerequisites: general biology and a course in organic chemistry. Booth

Modes of action and biological transformations of pesticides in living animals, plants, and the environment. Techniques emphasized.

538. Immature Insects. (2:0:4) Wood

Offered 1975-76 and alternate years.

543. Ichthyology. (2:2:2) Home Study also. Prerequisite: Zool. 203.

545. Herpetology. (2:1:2) Prerequisite: Zool. 203. W. Tanner

546. Ornithology. (2:1:2) Prerequisite: Zool. 203. Frost

547. Mammalogy. (2:2:2) Prerequisite: Zool. 203. Smith

549R. Advanced Topics in Zoology. (1-4:Arr.:Arr. ea.) Prerequisite: consent of instructor.

Topics to be announced each semester.

551. Population Ecology. (3:2:3) Prerequisites: Zool. 350; completion of or concurrent registration in Stat. 501. Jorgensen

Offered 1976-77 and alternate years.

552. (Bot.-Zool.) Terrestrial Ecosystems. (4:3:Arr.) Prerequisites: Zool. 350; Stat. 221 or 501.

Biotic communities of the earth; population dynamics; reproductive, lifeform, and longevity patterns; species interactions; and structure, dynamics, and evolution of communities. Extended field trips.

555. (Bot.-Zool.) Aquatic Ecosystems. (3:2:3) Prerequisites: Bot.-Zool. 350 or equivalent, Stat. 211 or 501. Barnes, Rushforth

Analysis of lake and stream ecosystems. Three Saturday field trips. One extended field trip.

565. Endocrinology. (3:3:0) Prerequisite: Zool. 461. Heninger, Jaussi

566. Experimental Endocrinology. (2:0:6) Prerequisite: completion of or concurrent registration in Zool. 565. Heninger, Jaussi

Experiments selected to familiarize students with techniques used in research.

575. Biochemical Genetics. (3:3:0) Prerequisites: Chem. 481, Zool. 371, or equivalent. Bradshaw, Farmer

Emphasis on eucaryotes. Offered 1976-77 and alternate years.

576. Human Genetics. (3:3:0) Prerequisite: Zool. 371. Jeffery

Offered 1975-76 and alternate years.

577. Developmental Genetics. (3:3:0) Prerequisites: Zool. 371, 483. Bradshaw

Control of gene expression during embryonic development; genetic mechanisms of cell differentiation. Offered 1975-76 and alternate years.

☐**Geology 580 or 581. Invertebrate Paleontology.** (4:3:2)

582R. Advanced Topics in Developmental Biology. (2:2:0) ea.) Prerequisite: Zool. 483. Bradshaw, Seegmiller

583. Etiology and Pathology of Brain Injury. (3:3:0) Prerequisite: consent of instructor. Chapman

May not be used for credit toward a major in zoology.

584. Neurology. (3:2:2) Prerequisite: consent of instructor. Chapman, Fleming

☐**Geology 584. Vertebrate Paleontology.** (4:3:2)

591R. Special Problems in Zoology. (1-2:Arr.:Arr. ea.) Prerequisite: consent of instructor.

601. Zoogeography. (2:2:0) C. White

609. Systematic Zoology (2:1:2) Wood

☐**Microbiology 611. Advanced Immunology.** (2:2:0)

612. Advanced Invertebrate Zoology I. (3:2:3) Prerequisite: Zool. 202 or consent of instructor. Barnes, Braithwaite

613. Advanced Invertebrate Zoology II. (3:2:3) Prerequisite: Zool. 612 or consent of instructor. Barnes, Braithwaite

☐**Botany 620. Cell Biology.** (4:3:3)

620. Theoretical Zoology. (2:2:0) Prerequisite: consent of instructor.

☐**Botany 621. Electron Microscopy.** (2:2:0)

☐**Botany 622. Electron Microscopy Laboratory.** (1:0:3)

☐**Microbiology 632. Cell and Tissue Culture Techniques.** (2:0:4)

633R. Advanced Topics in Entomology. (1-2:Arr.:Arr. ea.) Prerequisite: consent of instructor.

☐**Botany 638. Genetics of the Fungi.** (2:2:0)

☐**Microbiology 641. Radioactive Tracer Techniques in Biology.** (3:1:6)

657R. Advanced Topics in Animal Ecology. (2:2:0 ea.) Prerequisite: Zool. 350.

☐**Microbiology 661. Microbial Genetics.** (4:2:6)

662. Advanced Physiology I. (2:1:2) Prerequisite: Zool. 461 or consent of instructor. Heninger, Jaussi

663. Advanced Physiology II. (2:1:3) Prerequisite: Zool. 461 or consent of instructor. Heninger, Jaussi

☐**Botany 676. Cytogenetics.** (3:2:3)

☐**Botany 678. Organic Evolution.** (3:3:0)

☐**Geology 680. Micropaleontology.** (3:2:2)

☐**Geology 685. Paleoecology.** (4:3:2)

696R. Graduate Seminar. (½:1:0 ea.)

699. Thesis for Master's Degree. (Arr.)

799. Dissertation for Ph.D. Degree. (Arr.)

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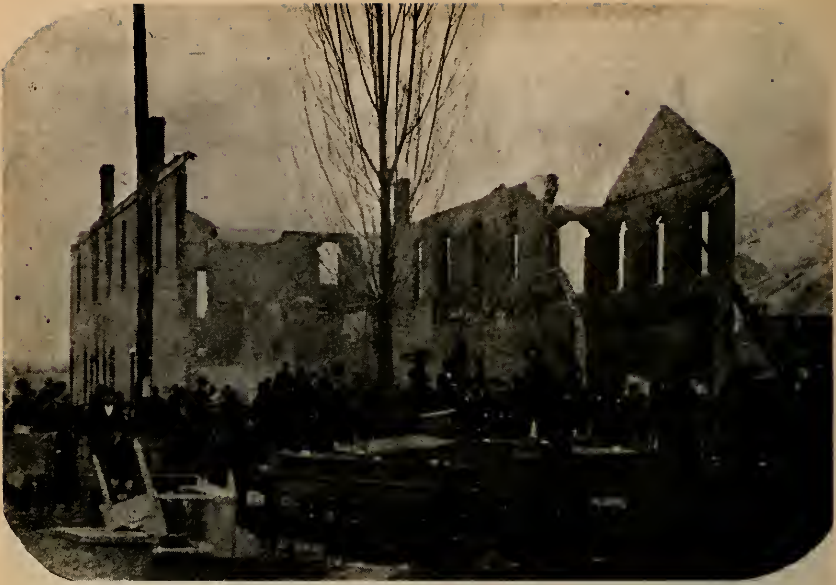
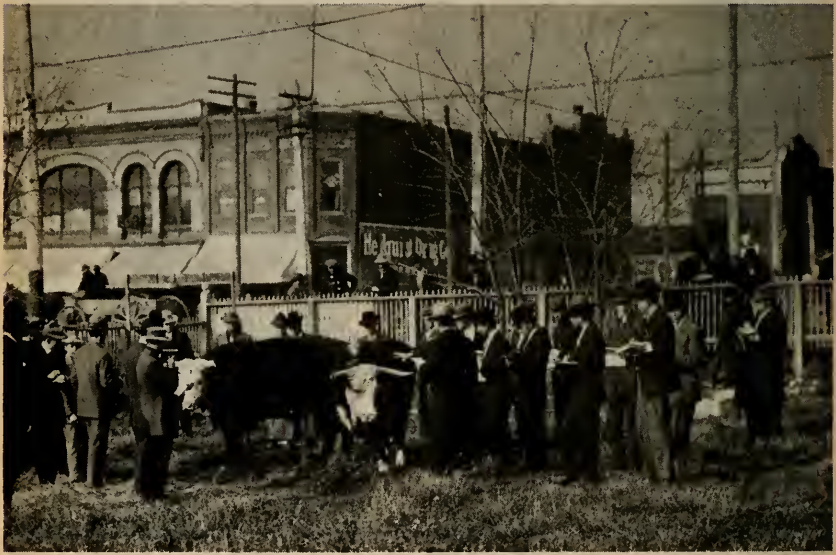
Wilmer Wiser, Ph.D., Collaborator in Zoology
Lowell Woodward, B.S., Special Instructor in Agronomy

Between practice sessions, BYU football players sampling the University-owned apple orchard adjoining the stadium, 1939.



Furniture piled in Center Street after the Lewis Building fire in 1884. When this building, the first home of Brigham Young Academy, burned, the citizens formed a bucket brigade from the millrace to the burning school at the end of the Third West block.



Cattle-judging fair held in 1902 in a lot on Center Street and First West where the J. C. Penney store now stands.

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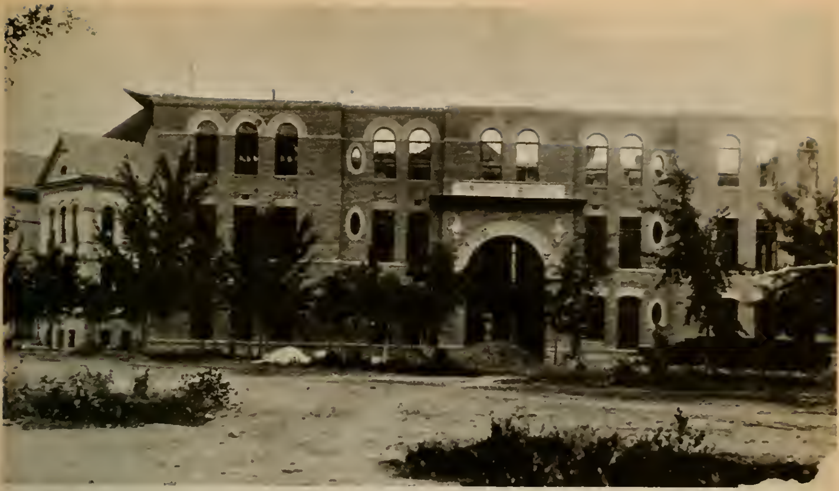
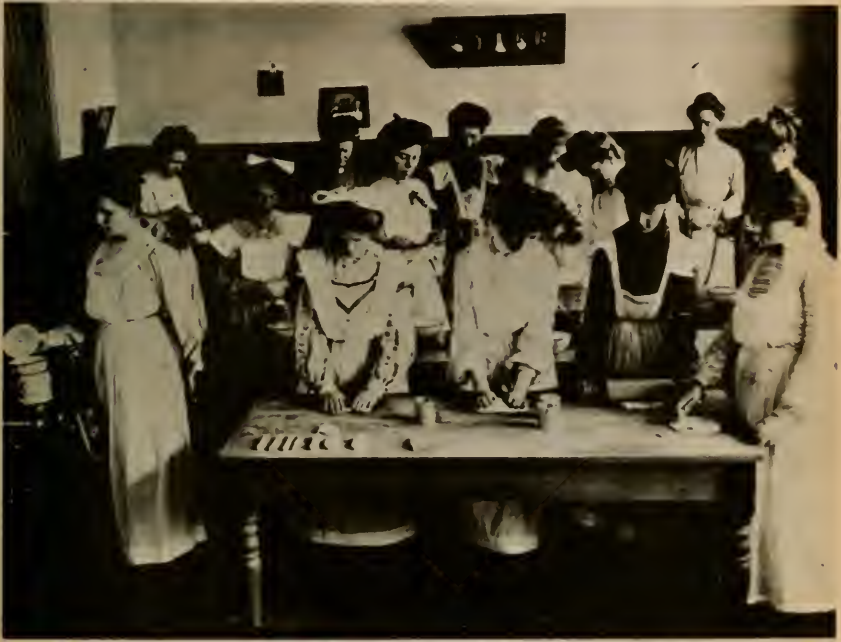


The Training Building under construction before roof was added about 1904.



Cooking class in old Education Building in 1904. Note coal stove and pictures on the wall.

In 1904 Stephen L. Chipman, a member of the Board of Trustees, suggested a course in iron work. A building was designed by E. D. Partridge, University engineer, and the two-story structure was built at 50 East 500 North, across the street south from the University block. Jesse Knight provided the funds for the building, which had ten forges.

The BYU Band and Chorus in College Hall about 1904. On either side of the drum are Albert Miller, band leader, and Anthony C. Lund, chorus conductor—later an apostle and the conductor of the Salt Lake Tabernacle Choir.

The "Sagerooters" preparing to leave campus in hay wagons to clear land of sagebrush on the Orem Bench in 1907. Typical of students of the time, they made a good time of it and were even serenaded at their work by the BYU Band.

Railbirds hanging on the fence of the old grandstand on Upper Campus observing an intersquad game as football was resumed in 1919. Courtesy of Homer Wakefield.

After a day of winter sports in the snow at Vivian Park in 1924—before ski resorts in Utah—the Y Winter Walkers gathered in the pavilion for food and dancing to a five-piece jazz orchestra (right). Courtesy of Homer Wakefield.

Grace and beauty on the shores of Utah Lake, as displayed by a modern dance group of the 1930s.

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